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TO HIS MOST GRACIOUS MAJESTY

GEORGE THE FOURTH,

And His Royal Highness the Duke of Clarence.

OPINIONS

ON THE CAUSES AND EFFECTS OF DISEASES

IN THE

Teeth and Gums,

WITH

Practical Observations on the devastating Consequences of their Origin,

AS ASCRIBABLE TO

LATERAL, OR UNEQUAL PRESSURE;

DEMONSTRATED BY

Delineations from Nature

OF INCIPIENT DECAY AND FINAL DESTRUCTION,

INTERMEDIATELY PRODUCING

Toothach, Tic Douloureux, Necrosis, Absorption, Loss of Enamel, Loose Teeth, Spongy Gums, and the fatal consequence arising from fracture and neglected removal of the roots of a first molaris through inflamation of the Maxillary Sinus.

IN PALLIATION OF WHICH, ARE SUBMITTED

MEANS OF CURE WITHOUT EXTRACTION:

INTERSPERSED WITH

Various Relations and Suggestions for the Improvement & Preservation

OF THE MASTICATING SYSTEM.

SECOND EDITION.

BY CHARLES BEW,

Surgeon-Dentist to His Majesty, and Royal Household: also to their Royal Highnesses the Duke and Duchess of Clarence, and His Serene Highness the Prince of Hesse Homburg.

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TO

His most Gracious

MAJESTY GEORGE THE IV.

SIRE,

Happy chance, and the warm interest of kind friends, having recommended my professional exertions to your Majesty's generous notice and protection, by my admission as Dentist to the Royal Household, has induced me, under the stimulus of your royal favour, together with the flattering reception with which my attentions have been crowned in other branches of your August Family, to offer, under the sanction of your royal countenance, a series of Opinions on the *Causes* and *Effects* of *Diseases* in the *Teeth* and *Gums;* with the means of their preservation from incipient attack, and

of ultimate restoration. As the system and treatment will be found to differ materially from former authors and professors, I have deemed it expedient to offer them to your MAJESTY'S gracious acceptance, and the world at large, under the form of OPINIONS: thereby courting that just investigation, and cautious consideration, which every work intended for the relief or advantage of human nature, should meet with from great and exalted Personages, and an enlightened Public.

Should the investigation meet the success I hope, no words will be equal to the conveyance of my feelings on the joyous occasion, of having promulgated an advantage, in which the comfort of the community are so materially concerned, or that those Opinions had been put forth, enlivened with the gracious permission of your MAJESTY, whose kind condescension, by delightfully drawing me to a nearer and closer contemplation of those varied virtues of heart and mind, for which your MAJESTY, is so eminently distinguished, will ever remain

indellible in the grateful remembrance of him who, with every sentiment of duty, admiration, and respect, humbly subscribes himself,

YOUR MAJESTY'S

Faithful and obedient,

Humble Servant,

C. BEW.

East Street,
Brighton.

TO

HIS ROYAL HIGHNESS

The Duke of Clarence.

ILLUSTRIOUS SIR,

From the accident which first gratified me with the honour of a professional introduction to your Royal Highness, down to the present moment, such a succession of satisfactory testimonies of your Royal Highness's approbation of my exertions, most condescendingly accompanied with the kindest recommendations of ability to branches of your illustrious Family and Friends, have crowned my endeavours, that words are wanting to express that sense of gratitude in public which has long proved a source of delight to my heart in private. But, although the expressions of acknowlegment to me appear weak, when poised against such a weight of accumulated honour and obligation; I find a consolation in the preponderance

of my feelings thus gratefully excited; and, destitute of the means of making any thing like an adequate return, shall seek comfort in the confession of a debt, out of my power to pay; incalculably increased by the kind interest with which your ROYAL HIGHNESS was pleased to peruse, in manuscript, the accompanying "Opinions on the Causes and Effects of Diseases in the Teeth and Gums."

In a more collected form they are again offered, with every sentiment of respect and gratitude, by

Your ROYAL HIGHNESS's

Much honoured and faithful,

Humble Servant,

C. BEW.

East Street,
Brighton.

PREFACE.

MANY years of practical experience, founded on a theory at once approved by the happiest success, together with the sanction of many who move in the first circles of Anatomy and Philosophy, have emboldened me, under the form of Opinion, to submit the Causes and Effects of that grievous plague to human nature, the Toothach.

Stimulated by the abstruse, vague, and indefinite suppositions which have been detailed to me in the course of operation; I have been induced to offer *something* like a rational refutation of systems, with their attendant train of incongruous absurdities, which, in the minds of philosophic or thinking men, could never have existed even in imagination.

When other eyes than mine peruse these pages, conviction will, I trust, rise from recol-

lection of the *phrases* that I may have been gravely told by persons of both sexes, in whose faces alarm and anxiety were as strongly depicted as the fearful falsehood had become fixed in their fancy:—

"Ah, you must be careful! my teeth are extremely delicate; and I have been cautioned to brush them but very seldom, for fear of *rubbing off the enamel.*"

Another—"Oh, my teeth are the *China teeth*—they are so thin—you see they are become transparent:—I have but few; and I am told I shall lose them all before I am thirty!!!"

Another, after a request to adjust some substitution—"Ah, you must not attempt to touch my teeth with an instrument: their disease is the *black rot;* and that, you know, is incurable."

Another, an absolute, occular, and olfactory nuisance—"Ah, I must not have my teeth cleaned; for they tell me, they are so loose, that if I have the tartar removed, they will fall out of their sockets, and that it uniformly attaches itself to weak teeth, as their means of support."

Where persons have plunged into the opposite extreme, and, from the discovery of decay in the front teeth, submit to the sweeping attacks of empirical files, the consequences have been disgustingly disastrous.

On a question as to the cause for the disfiguration in the teeth of an interesting female of the sister kingdom, whose fair features seemed to weep over their destruction—" Oh, 'twas unavoidable *decay* had begun its *havoc;* and, to arrest its progress, the *diseased part* was, as yon see, filed out!!!"—a mode as little founded on rationality, as would be the attempt at cure of ulcer in the extremities by the mere application of cataplasm. All recollection that the effect does but succeed the cause, and that to reduce the one, you must remove the other, appearing totally out of consideration. But the *cause* and *effect* are still visibly proceeding? " Yes! that has induced me to ask your opinion: but I am convinced they would have been much worse, if I had not had them done!"

And thus have I seen front teeth, in the vain attempt to remove decayed substance, re-

duced to shadows, with as little probability of success, and as ridiculously hopeless, as the race of the clown for the possession of the rainbow.

The ardent desire that some effectual stop may be put to the misconceived practice of either, on the one hand, aiding the disease, by a further exposure of the exquisite sensibilities of the interior structure of the teeth, by the ruinous *file;* or the apathetical representation that the malady is incurable; together with the fruitless recommendation of spirituous nostrums, as a temporary relief from the pain, until their ultimate exchange for artificials; is the sole motive which has prompted me by the arduous and thorny path of literature to promulgate opinions which I have, in combination with practice, had the honour to deliver, in private, to those who have sought my assistance, with the most general satisfaction.

As this work is undertaken with the declared intention of establishing, on the broad basis of reason and demonstration, a change of system, and operation, for the *prevention* and *relief* of diseases incidental to the Teeth and Gums,

which have existed almost for ages, I trust I shall stand acquitted, by the generous reader, of any invidious wish to point at the peculiar practice of individuals in the present day: to many of whom I am personally known; and to all, more or less, by report.

Wrong may be supposed *right*, until proved *wrong;* and believed *right*, demonstrated to be wrong, by the collision of opinion. Under this form I submit my conjectures to the consideration of those whom it may concern; and although there is not any fact, which I may offer in their substantiation, which I cannot confirm by oath and reference; "yet I must not, for sundry weighty reasons." All who peruse my *Opinions*, will easily recollect the style of the promulgator; whilst the circumstances which rise in relation, will, by the parties themselves, attest the veracity of their

Obedient and very humble Servant,

C. BEW.

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OPINIONS,

&c. &c.

COMPOSITION OF TEETH.

The avowed intent of this work being to establish, on anatomical and philosophical reasoning, a rational relief to the disease and pain antecedent to the loss of teeth; I shall, "with all brief and plain convenience," conduct the attention of my reader to that hypothesis whence the "bane and antidote" under consideration may be deduced.

All authors who have offered opinions on the diseases and structure of the teeth, are agreed in the material fact, that the origin of those powerful, yet sensitive, engines, in which the useful and ornamental works of Nature are so happily blended, are but soft and tender *pulps*, covered by a beautifully reticulated vascular membrane, from the arteries of which a coat of ossific matter

is deposited; whereon, in due course of succession, the foundation being laid, though yet insufficient for the purposes of ultimate destination, proceeding in the order "stratum super stratum," a silicious covering incases the ossific fabric, with the same nicety of articulation that the epidermis is made to act as a covering to the more exquisite sensations of the cutis.

How, and at what time, these ossific and silicious productions are deposited, would be difficult to ascertain, and of little import when known; clogged, as the search must be, with all the varieties attendant on infantine dentition.

It is sufficient for us to know, that they follow in rapid succession; and, thus armed, press through the integuments and gums; and, unless obstructed in their progress, arrange themselves in their several stations as assigned by Nature.

An Observation of Plate I.

The under jaw of a child between seven and eight years of age will serve to illustrate the above: one of the front teeth is turned out, as having reference to the formation.



FORMATION.

Having ascertained, in the consideration of the component parts of the teeth, that the work of formation commences with the head, or that part intended for contact in mastication, it is easy to conceive how (that, being once completed) the roots, or fangs, then fall into formation; and the time that the head, amply furnished for its intended operation, is in the act of rising through the gum, the root is advancing in perfection, in an opposite way, and filling up its station in the alveolar socket.

Here, by a process impervious to human sight, but comprehensible to human imagination, the sensibilities of an internal and external periosteum are added, amply supplied with blood vessels, as may be seen in clear demonstration, by the bleeding fibres, on the exterior of a recently extracted tooth, or the succeeding hæmorrhage from fracture by percussion.

The interior periosteum of the teeth is supplied by blood vessels, distributed through the

alveoli, called the dental arteries, being branches of the internal maxillary artery, which takes its rise from the external carotid, where it is defended by the parotid gland, situated somewhat behind the centre of the perpendicular portion of the lower jaw, where it divides into the condyloid and coronoid processes.

Its first passage is between the jaw and the external pterygoid muscle; and thence, by a serpentine route, posteriorly enters the maxillary antrum: from this position various branches are directed to both jaws, and to the upper teeth in particular. The lower jaw receives a branch of the same artery, known by the double term of the dental and inferior maxillary; which, passing through the posterior maxillary foramen and maxillary canal, applies its ramifications to the minute apertures at the point of each root, and thus keeps the interior and exterior in a continued course of circulation.

As the process of dentition is, in point of fact, the same with the primary as with the permanent teeth, a reference to *Plate I* will form ample illustration of both.

The jaw of a child under eight years of age,

representing the alveoli, or sockets of the six primary incisors, and two cuspidati, of the under jaw, as having been vacated by their pristine inhabitants, to give place to those of the permanent; which may be seen as supplying their place, in the ratio of *one* permanent to fill the station of *two* primary.

One of the central incisors is turned out, to show, though the head is perfect, the root is incomplete; as also one of the cuspidati, or canine teeth, which, in its progress to permanency, must, in its passage through the alveoli, force out the primary molaris, or entail by neglect its consequent deformity of position.

Under each of the primary molaries, or grinding teeth, are placed the bicuspides, much smaller than those they are to succeed; and by the two larger teeth, last visible in the jaw, we are enabled to consider the form of the first permanent molaris; behind, in its alveolies, the second; and behind those on each side, the speck-like cavity, whence ultimately would have been produced the dentes sapientiæ.

The upper figure on the left of the Plate represents the membraneous pulp of the embryo

tooth; that on the right, a section of a permanent cuspidatus, with the external and internal circulation.

SITUATION.

The situations of the teeth are so arranged in the primary and permanent sets, that the two central incisors of the upper jaw are opposed in mastication to the two central and lateral incisors of the lower jaw, which, in the perfect set, shuts under the upper.

The lateral incisor of the upper jaw is so placed as to act against the lateral incisor and cuspidatus of the lower jaw; the cuspidatus of the upper between the cuspidatus and first bicuspis of the lower jaw; the first bicuspis of the upper jaw between the first and second bicuspides of the lower jaw; and the last bicuspis of the upper jaw between the last bicuspis and first molaris of the lower jaw; and so on *vice versa;* which more distinctly appear in *Plate II*, as representing the contact of the teeth in both jaws, in the complete set.

By the arrangement here offered for inspection, it will be seen that Nature, as if to guard her works from injury by close contact, had so planned the situations of the teeth, that no single tooth should, in fact, press solely upon another, but in the powerful triangular ratio of one to two; and, even in this, the power appears to be admirably settled for their general economy, by being confined to the sides.

For, on examination of the central incisors, if the formation be perfect, the impression of the teeth is made by the overhanging of the upper jaw, passing in a slanting direction upon the notched surfaces of the under incisors; the cuspidati performing the same action, with an increased energy, from their magnitude and situation.

The bicuspides accelerate the preparation of food for the stomach, by the addition of a double lateral action, as the *mitre-like forms* of the upper bicuspides are made to sink into the corresponding cavities of the lower bicuspides; whence the food is, by the united movements of the tongue and buccinator muscle, thrown under the actual pressure of the molaris, and thence, with that

lubricative moisture (which never fails to be insinuated with all substances submitted to mastication), is passed into the stomach.

An observation of the roots of the teeth, with their sockets, will sufficiently point out the cause of their position, and the effects they must naturally produce.

Thus we find the central and lateral incisors of the upper and lower jaws suited to a slanting action of no vast force, furnished with elongated conical roots, rather flattened on the sides, enlarging where they meet the enamel, and terminating in sharp points.

The cuspidati, spear, or canine teeth, of similar but enlarged structure, having their roots somewhat fluted on the sides.

The bicuspides with broad flattened fangs, so geminated, that they sometimes appear as one, though seldom in the upper jaw, where they are usually divergescent, the better to sustain their action.

The first molaris in the upper jaw has three fangs, two between slanting and straight, the other branching in the interior of the mouth, almost describing the segment of a circle.

The second molaris has generally two long fangs in gemination; the third, rather smaller, usually conical, but sometimes appearing with whimsical and distressing varieties.

The third molaris, or, as it is termed, the sapient tooth; small, conical, and sometimes with little diverged fangs at the extremity.

The first molaris of the under jaw has two fangs, the outer one somewhat bowed, but approaching at their extremities, sometimes straight, and at others distressingly diverged.

The second molaris; usually so geminated, that though two fangs may be traced, yet they appear as one.

The third molaris or sapient tooth; small, conical, and sometimes little fangs are found at the point.

The bicuspides of the lower jaw very much resemble, in their roots, those of the upper jaw, though differing in their heads or masticating parts, as on them may be traced a sort of indentation resembling a *horse-shoe*.

All the teeth throughout the set are seated in alveoli or sockets, exactly fitted to their form, and competent to sustain them in that kind of

contact for which they were designed by Nature; beyond which they are vulnerable and sensible of injury, as will be seen in succeeding pages.—*(See Plate II).*

CHANGE.

From seven to eight years of age is stated as the usual time when change is commenced between the primary and permanent teeth; but this theory is so accompanied with variety in the practice, that it is scarcely safe to affix any time, and if we do, we shall find that we build on a false foundation.

This, I trust, will be rendered apparent by detail and demonstration, by the jaws of a child whose skeleton I accidentally met with in L'Ecole de Medicine at Paris.

In children of six years, I have seen the primary incisors of the lower jaw giving place to those of the permanent; while in others approaching to nine, I have seen them still in their places, though other lateral changes had gone on in due course, rendered still more remarkable by the



first remove having taken place in the incisors of the upper jaw.

Under these circumstances, our safest mode is to take for our guide facts as they arise.

The elevation of the permanent teeth, by their pressure on the roots of the primary, cause them to be absorbed, and rendered so loose in their sockets as sometimes to fall out ; but oftener, from neglect, the permanent tooth is suffered to bore its way by the side of the primary, rendering what had been before loose, again firm, closing its career by the creation of most frightful deformity.

Indeed, owing to want of attention in this particular, persons have retained their primary teeth, uncomfortably associated with the permanent, to the termination of their existence.

Proceeding in the statement of *Plate I*, the primary teeth declare, by their instability, the season for their removal ; if this be omitted, by the wedge-like action of the coming tooth, they again fasten, and deformity follows.

When once the operation of change is begun by Nature, it must be furthered by Art ; and as it will be seen by *Plate I* that a permanent

tooth will nearly occupy the place of two primary, room must be judiciously made for their accommodation by the removal of the primary, *although they be not loose*, and sometimes the suppression of a *bicuspis above* and *below* from *each side* is indispensable for the preservation of the beauty of that *arch* alike estimable in sight as enunciation.

PLATE III.

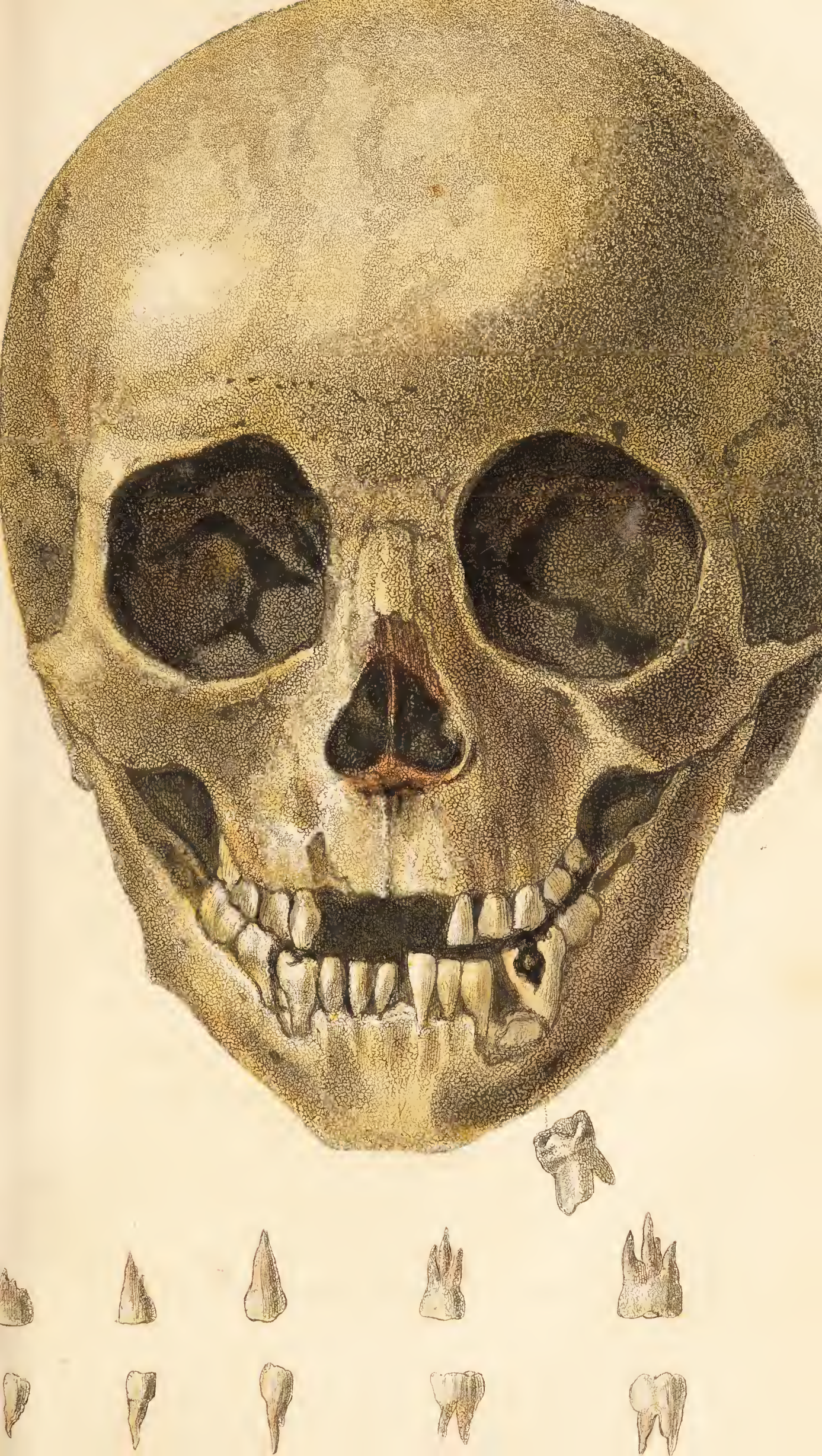
The Jaws of a little French Girl.

A. The Incisors of the Upper Jaw removed.

B. The Incisors of the Lower Jaw remaining; the tip of the permanent Incisor visible, as rising between the primary as marked by the space it has occasioned.

C. The first primary Molaris having fallen out gives a view of the first Bicuspis.

D. On the right side the same change appears to have been going on; the head of the Bicuspis is partially seen, from the primary Molaris not having yet quitted its station.



E. The second primary Molaris diseased from lateral pressure; the same thing is discernible on the other side.

The Lower Teeth are the complete primary Set when fallen out, or removed from their sockets, the fangs being absorbed by the pressure of the succeeding teeth.

THE CONSEQUENCES OF NEGLECT.

The consequences of neglect are so apparent in our walks through life, either as operators or casual observers, that little need be said on the subject.

Indeed, the necessity of assistance during the progress of dentition, appears to be established, on all hands, beyond the carping of controversy; we only appear from opinion and circumstances to differ as to time.

On some occasions the existence of an idea that *science* and *skill* are immutably fixed to the *head* and *hand* of a family operator, will cry veto to the application of *local assistance*, though seas and mountains divide the parties; and de-

formity ever after grins frightful in the face of the parents, whose hesitating folly disfigured the object of their affections.

Cases I have witnessed, where an obstinate and filthy schoolmaster, pregnant only in pride, pronouns, participles, and dirt, rejected assistance, though Nature called loudly for help, merely forsooth, because, without *pain*, his teeth had rolled out of their sockets, with an accumulation of calcareous earth, figuratively resembling the flannelled incumbrance of the gouty, till the mansion was destitute; and he, in his *wisdom*, denominated the dentist, an excitement to vanity*.

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* It may not be improper to remark, that the accumulation of calcareous matter (or, as it is vulgarly called "tartar,") owing to the action of the carbon that is exhaled from the lungs, will, if neglected, increase to so annoying and frightful an extent, as completely to incase the lower teeth; and, when detached by accident or design, has frequently been known to flake off in portions, equal in dimensions to the kidney bean! Owing to the pressure of this calcareous deposit, the gum becomes absorbed to a great extent, and in receding, resigns the thin alveolar process or wall of the socket to its ravages, so that the tooth, deprived of its due support, soon quits its station in the way described.

Other families, where either pain or inconvenience from *tooth-ache* or *change*, has induced any of the younger branches of the community, to disclose the state of the mouth, have, indeed, suffered the village apothecary to transport the culprit; or, if he resided at a distance, the barber or blacksmith were resorted to in cases of extreme necessity.

By such conduct, uniformity of arrangement and its opposite consequences appear to be not at all considered; and those teeth, which, by proper treatment, would have been ornamental as well as useful, are suffered to rise with the accompanying variations of green, white, and black in crowded confusion, like the tombs of the church yard; implanting impediments and a train of evils out of human power to prevent or eradicate.

In opposition it may be urged, the reluctance parents have to inflict torture on their children or relatives: this hypothesis is "as false as stairs of sand," and means mischief to all it applies to —the incipient gradations of perfection are mentally and corporeally painful, from the child who studies his "Propria quæ Maribus" to the philo-

sopher in his cabinet; and the reward is alike commensurate to all parties on the attainment of the point desired.

To this may be added, the never-dying reproach which the child is sure ultimately to throw on the imbecility of the parents, who foolishly lend their aid in the destruction of so useful and prominent a portion of the human system.

Of a painful instance of this nature, I was compelled to be an eye and ear witness.

A few months after I had been honored with an introduction to the Royal Household, I was applied to by a young lady for an opinion on the then state of her teeth; in the course of our conversation, as to what was absolutely requisite for their rescue from further destruction, I professionally proceeded to trace the *cause* to its sad effect; reason conveyed conviction to her comprehension, with agony, aggravated by the keenest reproaches on those whose mistaken fondness in childhood had founded the misfortune.

Convulsive sobs succeeded suppressed utterance, while tears, as she advanced towards a mirror, kindly interposed, as though they would baffle in reflection the cruel cause of her distress.

" But when the storm found way, 'twas wild and loud,
" Mad as the Priestess of the Delphic God;
" Enthusiastic passion swell'd her breast,
" Enlarged her voice, and rufflʼd all her form."

And whilst her streaming eyes coruscated with the lightning of resentment, her tongue was vehement in invective on the authors of her misery.

Allow me here to say, in palliation of this picture, that having prevailed on her to submit to an operation, I arrested the progress of the evil, and left it but a trivial eye-sore, with which, had not recollection intervened on the easy method by which all would have been prevented, she might have been truly happy, for her form and features were cast in Nature's softest mould; and of her might be truly said—

" La natura si fece e-poi rompè la stampa."

But to be pretty in spite of her teeth, was not to be endured, and a visit after two years absence, engaged me to adjust some artificials, which she had been persuaded to have engrafted on the roots of her own; her inducement being their better look.

From a female acquaintance, who some time

after spoke of her, I found Fate had put a period to her anxieties—

" Peace to her manes!
" Her lips by death are seal'd;
" And who she was can never be reveal'd."

ADVANTAGE OF ATTENTION.

The good effects resulting from attention to the teeth in the earliest stages, even to lengthened existence, is so abundant in advantage, as to require little argument for the enforcement of the necessity.

Enough has been said and seen of the propriety of proper attention being paid to the removal of primary teeth, for the better arrangement of the permanent set.

The loosening of the primary teeth, and the protruding of the second, will infallibly, to the eye of observation, plead the precise moment of assistance; at which time the operation is trifling, fluctuating between one and two; but from want of attention, the cruel interposition of false indulgence, or professional aid; I have known the

loss of eight and ten teeth requisite to the prevention of deformity.

If the permanent teeth are aided in their progress, they will arrange in the most perfect order, while many of the attendant evils which I shall have to describe in the process of this work, will be happily obviated.

As it is often found much easier to prevent than cure a disease, so is it more advisable to avoid deformity, by subjecting the child to the trifling pain and gradual loss of one or two teeth in a month, during dentition, than to reserve them by dozens, for the coup-de-main of the dentist; who is not only often reluctantly compelled to leave the habitation for a time tenantless, but to sting the thoughtless parents, by the promulgation of an evil out of his power to eradicate.

It may not be here improper to point out an erroneous opinion but too prevalent, that the maladies of the mouth are confined to persons of distinction and families of opulence; while the lower orders of society, who scarcely know the dentist but by name, are ever described, from the beauty of their teeth, as smiling in derision at the efforts of art, in opposition to those of nature.

To have a just estimate of this opinion, we should consider the locality of the circumstances, under which the *subjects* which form its foundation are presented to our consideration.

A little chubby chimney-sweeper, by the bawling announcement of his avocation, attracts attention in the public streets ; the eye instantly rests on a little figure, the features of whose face are smothered in soot, with the exception of the eyes, lips, and teeth ; health and youth produce in his lips a ruddy, prominent, and arching object ; of the centre and lateral incisors of the upper jaw, their pearly whiteness are, of course, considerably encreased, by the gloomy medium through which they are presented.

That painter must know little of his profession who would not heighten the effect of a snow scene by the addition of a black frame.

The teeth of the brown-faced boy, or rosy rustic girl, never fail to excite, *en-passant*, the envied tribute of admiration, and the supposed conviction of the veracity of this too-generally established belief.

But let me earnestly recommend those who would run away so boldly with the bait, to be

cautious of the hook; as were they but to apply investigation instead of casual observation, they would find these imagined felicitous objects of their passing notice, as much in need of assistance as the rest of the world's frail fraternity; and the dogmas as destitute of force, as falsehood when opposed to the test of substantiated truth. They are, indeed, but as so many lottery prizes, which often excite attention, while no thought is bestowed on the ruinous accumulation of blanks by which they are counterbalanced.

COMPLETION

OF THE

Primary and Permanent Sets of Teeth,

THE

Commencement of Decay.

In offering this portion of my opinion on the maladies incidental to the teeth, I am well aware that by rending the veil from a treatment I have long contemplated in theory, and reduced to practice with the happiest success during many years, I tread on ground untrodden before, and offer a wide field for the contemplation of the philosopher, in the anatomy and pathology of these organs of mastication.

All will be open to their investigation; and should I, in the scale of their more profound inquiry, be "tried and found wanting in the balance," the success of the practice will plead my apology for the crime of innovation; and, by having drawn wiser heads than my own to the consideration, "a good end may be gained to a bad

beginning ;" but should the theory, through their analization, like pure gold come forth from the furnace, neither wanting in weight nor value, my rejoiced spirit " shall applaud to the very echo that shall applaud again" the happy thought which led to the promulgation.

To those who only casually glance at the teeth, primary or permanent, with healthy gums, fitly arranged in their several sockets for purposes of mastication, aided by the conviction of sight and feeling, that they are the hardest substances in our system ; how inexplicable, and irreconcileable to credibility, must it appear, that these *very hard* substances, with their *flinty coatings*, date their destruction from completion, by *lateral pressure against each other.*

And yet the fact may be substantiated by our never having seen a child attacked with caries and pain in the teeth, but in the complete set, or where they appeared to be in close contact, aided, as the mischief often is, by the protrusion of the first primary molaris ; a retrospection of the jaw of the French child in *Plate III*, will exemplify this point.

In the space made by the falling out of the

first primary molaris, for the accommodation of the coming bicuspis, a caries is plainly discernible in the second primary molaris ; and in the opposite side a corresponding disease in the first primary molaris, in the act of giving place to a rising bicuspis.

In many instances I have been called on to extract the primary molaris in a state of disease on both sides, above and below, but chiefly in the lower jaw, even before the appearance of the first permanent molaris ; and in some cases the contagion has been so rapid, that even *these*, from caries, and acute pain, have shared the fate of the former.

Under such circumstances, to attempt other relief than their removal, would be ridiculous, although I am sorry to say I have seen cases where the operators had entertained a different opinion, by leaving a diseased primary molaris, loaded with gold, to the obstruction of the rising bicuspis, which, from being unable to burst the opposing barrier above, had, in oblique deformity, effected its object below.

Had not lateral pressure, in this case, evinced its mischievous tendency, by locking the tooth to

its station, and then diseasing it, the tooth, from the absorption of the roots, by the rising *bicuspis*, would have become loose; when we may fairly infer, instead of being ornamented with *gold*, it should have been more properly plucked forth by the forceps, for the better accommodation of its legitimate successor.

That lateral pressure is as active in its destruction of *adult* as *infantine* teeth, we have every day the most convincing and distressing proof.

I have frequently been applied to by persons of both sexes and various ages, as a *dernier resort*, to preserve to them their *front teeth*, some of which had been loosened by contact in mastication (a purpose for which, by nature, they were never intended) the whole of the molaris having been cleared in eradication of *tooth ach*.

If the reader but refers to the *formation* of teeth, he will easily conceive the means by which these truly sensitive bodies are affected.

To every branch of our frame, where blood is to be distributed, it finds its destination, by the expansive and contractile powers of the heart, and the muscular elasticity of the arteries, while

its return is more tranquil, imperceptible to the touch, and only regulated by the circumstances attached to its known movements of regurgitation.

On the establishment of this point, I have formed the foundation of that theory which I am anxious, for public advantage, to submit to general investigation.

That a tooth, although the hardest substance in our composition, is not an insensible body, none will dare deny.

And that, if tasked beyond its power of resistance, is exquisitely sensible of injury, is as little to be doubted.

What then are the appearances which a tooth exhibits from violent pressure, or percussion, short of fracture? We will suppose a *central incisor*. An acute and darting pain is felt through all the interior structure of the tooth, from the point of contact, ending in a benumbing sensation of the membraneous articulation of the socket; whence *blood* is, in some instances, discharged.

After a few hours, the tooth, before brilliant in all the lilied livery of health and beauty, is

observed, in opposition to its blanched companion, to have put on a pale blue appearance, and to announce its having become "sicklied o'er with the pale cast" of injury; *but, in the beginning;* for, in succeeding days, the *pale blue* appearance is converted into brown or black, and the osseous or bony part of the tooth, now deprived of life by the destruction of its blood-vessels, becomes a *sphacelated substance*, and moulders into dissolution, like any other matter robbed of vitality.

To account for the changes of appearance exhibited in a tooth, from the commencement of injury to its entire destruction, we have only to receive rational conviction, to find the fact established beyond the power of controversy.

From the moment of received injury, such as described, a rupture of blood vessels of the exterior periosteum, lying immediately under the enamel, is effected; then it is that the tooth first puts on that *blue* appearance.

From the anguish which succeeds percussion, or pressure, an increase of heat is excited; by heat, blood is attracted and increased; the interior fills like an aneurismal sac; the contents

of which, becoming darker as it coagulates, declares the rapid advance of destruction within, by the deeper hue of dissolution without.

To satisfy myself as to the veracity of my conjecture, on being called on to extract a tooth from a person, which, from similar injury, had become so disgustingly black as to determine the proprietor to replace it by substitution; a fine saw soon gave me a sight of its interior, which I found nearly excavated, and containing a substance resembling snuff, which, in advancing to the nostrils, affected the olfactories with the scent peculiar to decayed bone.

That this dried snuff-like substance was a *commixture* of *blood* and *bone*, or a residuum from their vitiated action on each other, I entertained the strongest suspicion: that the tooth had been destroyed by injury, was out of doubt; from the evidence of the proprietor, and from its subsequent state after extraction: but then to trace that injury to a graduated scale of certainty, was the ground of contemplation.

To this end, I selected a perfect incisor of the upper jaw, and, having longitudinally divided it, I mixed a colour *resembling blood*, and applied

it with a camel's hair pencil to the posterior part of the front half of the divided tooth: this colour, when viewed through the semi-transparent coating of the tooth, produced, as I expected, a close resemblance to that which I had beheld in the reality.

As I was determined to pursue the advantage I had gained, on the drying of the first coating, I applied a second, third, and so on, till the *artificial* and real discolouration became fac similies of each other.

Of the truth of this test, any one who pleases may assure themselves, without having recourse to *teeth* for the experiment, by merely applying *red lake*, or vermilion, to the posterior or concave side of an egg shell.

Having thus ascertained the effects of percussion and pressure in the front teeth, I feel confident of being able to trace lateral pressure, from the *achievement* of *completion* in the set to be the commencement of destruction.

Next to the incisors of the upper jaw, the teeth most exposed to danger, from the effects of *lateral pressure*, are the bicuspides and molares of both jaws.

The first intimation we have of the malady, is, an uneasy thrilling and throbbing, when touched, in the teeth affected; with a constant application of the *tip* of the tongue, as it were, to soothe a sensation as yet but slightly and intermittingly felt, happily illustrated by the Italian phrase,

"La lingua batte contro il dente dolore;"

the real cause not being in the slightest degree suspected.

The next symptom with which we are presented, is a frequent discharge of blood, which is produced by pressure of the teeth in contact, overcharging the blood vessels lining the socket, and an increase of tenderness in the teeth themselves; whence, appalling and fœtid effluvia, are perceptible to the *taste;* and a *tooth-pick* now becomes a necessary appendage.

A few days more of blameful inattention, and the death and consequent excavation of the interior, or ossific structure, renders the *silicious* surface inadequate to the support of further pressure; it gives way, and the subtle undermining

mischief is then seen to have been *caries* of the bony part of the tooth, and not any affection of the enamel; which now proceeds with giant strides, and, aided by the atmospheric air, accompanied by accumulating fits of anguish, lays open the sensibilities of the tooth, or teeth, which ultimately reject all relief but removal; extraction having been considered, from time immemorial, the only rational remedy for tooth-ach.

TIC DOULOUREUX.

This disease, which the rust of antiquity and the varnish of French nomenclature have rendered formidable, from its inroads on the tranquillity of the nervous invalid, I have the firmest reliance on being able to reduce to my readers, under the origin of lateral pressure. *Tic douloureux*, though Frenchified in its designation, is, in plain English, neither more nor less than a nervous throbbing sensation, chiefly confined to the space of three teeth on each side of the upper jaw; namely, the two bicuspides and the first molaris; all (and particularly the two last of these teeth) being in the vicinity of a hollow plate of bone resembling a *bean-pod*, called the maxillary sinus, or, by some, from the name of the discoverer, the antrum of Dr. Highmore.

These teeth (the roots of which I have sometimes known to transpierce the lower plate of the

sinus) when, in an incipient state of pressure, without exhibiting any ocular demonstration of mischief, or at least for a term impervious to detection, are so excited, that a sort of uneasy, fluctuating sensation is at first slightly perceptible, which ultimately ends in an intermittent throbbing agitation of the nerves to which they are peculiarly attached.

The anguish arising from this complaint, increasing by duration, is heightened in its effect by being most active when the patient would seek repose. Every attempt at rest is rendered abortive: sleep flies his pillow; and, between the *tic* of the disease and the *tick* of his watch, the counted seconds of each succeeding hour cause him to linger out his night in lengthened misery.

In this stage of the malady, many I have heard of, some I have seen, who have had their health seriously deranged before inflammation of the face, or discovered caries in the teeth, by pointing at the probable source of the disease, have effected their relief.

A beautiful and accomplished young lady of Brighton, who had been for two months confined

to her chamber under a similar attack, will, I feel confident, whenever these pages meet her inspection, candidly acknowledge the truth of the symptoms I detailed on her submitting to my consideration the malady under which she had so long laboured, together with the satisfaction she expressed at the successful means I used for recovery.

To prove the possibility of immediate relief in this hitherto-thought incurable complaint, I beg leave to submit the following anecdote, of the veracity of which, although I was not an eye witness, I have not the slightest doubt, from intimacy with the Physician to whose discernment the cure was attributable.

A nobleman, remarkable for the beauty of his teeth, had been seized with what was at first conjectured to be a rheumatic attack in the face from exposure to cold. The usual remedies were applied, without any visible decrease in the disease, which was at length pronounced *Tic Douloureux*. Though various were the applications, all were alike ineffectual. At length, pain during the day, and deprivation of repose through the night, brought the sufferer to a perilous state.

A physician, who lived in the neighbourhood, was called in, on the score of asssisting his general health, which had given way under the continuance and severity of the attack.

Fortunately, this gentleman, proceeding in the plan of the celebrated Dr. Darwin, who, whenever consulted on attacks of the face and head, always threw a suspicious glance at the teeth, discovered the seat of complaint by a visible caries in a brace of bicuspides.

The Doctor having satisfied himself as to the cause, confidently pronounced a complete restoration of the patient's health through the power of his prescription, provided it was implicitly and unconditionally followed. The noble patient joyfully promised obedience: the Doctor wrote; and, having previously despatched a servant with the prescription, left the house.

The servant soon after returned, accompanied by a Dentist of celebrity, whose introduction produced no little surprise in the invalid, who, asking his motive for calling so unseasonably, received, in reply, the prescription of the Doctor, desiring him to draw the denounced teeth, together with the nobleman's promise of com-

pliance. This being readily given, the deed was done, and the pain removed with the teeth.

A night of undisturbed repose on the part of the patient, greeted the Doctor's morning call with cheerful looks, and the general joy of the whole family; while a few days of attention restored him to pristine health, and the society of his friends and acquaintance.

On the Doctor taking his convalescent leave, a *paper fee* (guineas having for a time seceded from circulation) accompanied the parting shake of the hand: a home appointment occasioning the Doctor's immediate return, the last-received fee, amongst many others, met his eye, and to his astonishment appeared single notes of One Hundred each; they bore the name of the noble patient, and thus put all doubt out of the question. The physician, actuated by a spirit of honour, lost no time in retracing his steps to the house he had so recently left, conceiving the magnitude of the *fee* to have originated in mistake. "No mistake, I assure you, my dear Doctor," replied the Peer, "I was suffering martyrdom; and if it were possible you could contrast the pain I endured, with the pleasure I now

feel, you would think with me, that I had purchased my preservation at a cheap rate ! ! !"

The deed of the Doctor was certainly conclusive, as far as it regarded the restoration of the patient; but when a *saving clause* can be conveniently introduced, it is to be hoped not presumptuous to suppose it would meet more general SATISFACTION.

Before I take leave of the malady denominated *Tic Douloureux*, I hope to be able to impress conviction on the mind of the reader, by demonstration, that *Tic Douloureux* in the teeth, although originally excited by lateral pressure, is, by long continuance, ultimately productive of inflammatory action in the socket, from whence, by elongation, the tooth, by its contact with the opposing teeth in mastication, is rendered unstable, and by the irritation of the membraneous covering of the root, incurs swellings of the face and gum, and all the consequences concomitant with vertical pressure.

To a gentleman, long exposed to the *tyranny* of this *Tic* in the nerves of his face, who resided on Barnes Common, in the June of 1817, I was directed to pay a professional visit, by a physician

of considerable eminence near Grosvenor Square. The family having been previously prepared for my appearance, I was introduced to the patient, who I found in bed labouring under all those febrile and fretful symptoms, which a combined action of laudanum and an exhibition of mercury, together with long confinement and sleepless nights, might be suppesed to have produced. After having detailed my opinion of the case, with the plan of operation to be pursued (which I had been previously compelled to deliver to two females in the parlour ! ! !), I was permitted to examine his mouth, the masticating œconomy of which, time, disease, and misconduct, had so ravaged, that the chewing action was performed by three or four teeth, the right central and lateral incisor and cuspidatus, the lower and upper teeth on each side either removed or worn down, so as to throw mastication on the front; the cuspidatus was, if I remember, the longest and the chief point of pain, reported to proceed from the immediate vicinity of its alveolus; on the cheek there also appeared a scar, relief having been vainly hoped from division of the nerve ! ! !

These teeth were so closely associated, that a

hair would not pass their sides. I immediately proceeded to their separation; and on this being effected, the patient declared he felt easy, and as though relieved of a weight; in his then languid state, hoping relief from rest, I proposed cessation of proceedings on the ground I had gained, reserving the complete victory to a future occasion. This being fixed for the next day, he took his dinner with a degree of comfort to what he had for some time been a stranger; and, amidst the sensation of delight I had occasioned to himself and family, I took my leave.

On the succeeding morning my disappointment was great, in hearing that my patient's repose had been interrupted by the return of the *twitchings*, and that two hundred drops, or perhaps more, of laudanum, had been ineffectually administered. Against this adding *fuel* to *fire*, I vehemently protested; and, supposing the patient too ill to see me, proposed taking my leave, but was informed the gentleman wished to see me. He accordingly came down, folded in flannels and linen, a fit representation of the resurrectioned Lazarus, and entreated I would proceed in the process for his relief. My object

now was to reduce the teeth above and below, in length, that the weight of mastication might be thrown on *less afflicted* subjects, or at least to procure a moderation of action in the peculiar part affected. This I unfortunately found impracticable to the extent I wished, from the losses already sustained in the large teeth, but at his request removed a loose and worn-down central incisor of the lower jaw, which from having annoyed him in closing his mouth, he had endeavoured to extirpate with a pen-knife.

I now looked upon the case as hopeless, and intimated, that should relief not accrue from the treatment I had devised, no alternative presented but the parting with the teeth.

Although I have not since seen him, I understand the case still to be in the same condition—probably so to remain, till loss of teeth or life put an end to his sufferings.

A few days after my return to Brighton, a case of the same kind was presented to me in the person of a poor but industrious creature, in the occupation of postman. The cause was the same—the mouth exhibiting equal spoliation by disease and neglect, and the point of attack pre-

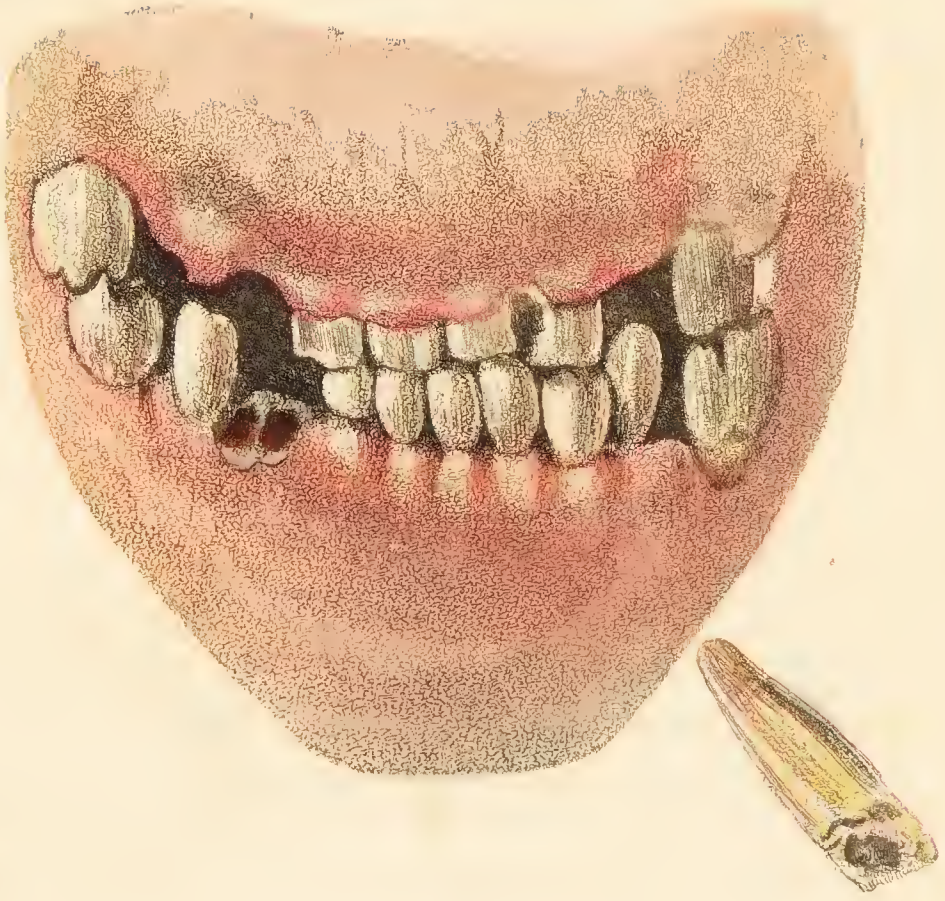
cisely the same, but on the opposite side of the upper jaw to that of the case last mentioned.

On taking off the handkerchief and wrappers which incased his head, one half of his face resembled the body of a new-boiled lobster, so reddened and swollen by inflammation as to have completely shut up the right eye. From the commencement, to the time of his visit to me, had occupied a space of nearly three months; in the course of which, various were the internal and external applications from which he had sought relief—the climax of which, and from whence the disfigurement of the face arose, was a *hot brick*.

Palliation of pain, and preservation of the few remaining teeth, was the immediate object in consideration:—to this end, two blackened and diseased stumps of the *bicuspides*, in a line with the carious cuspidatus originally injured by lateral pressure, and at that moment the chief excitement of his misery; from the loss of the blood which succeeded the removal of the stumps, the usual operation of the file, and a soothing application to the part affected, he left me with a considerable abatement of pain;

having previously ordered him a smart cathartic, with directions to apply occasionally a fomentation of chamomile.

The next day (Tuesday) having been obliged to attend, as usual, at Worthing, I did not see him; but on my return late at night, received his request to see me. I accordingly visited his cottage in the morning: I found the eye reduced to nearly its original standard; and the face, though still swollen, free from pain, which had been during the night scarcely endurable. From his complaining of a disagreeable taste in his mouth, and observing a yellowish matter about the gum from whence I had extracted the bicuspides, I judged inflammation had been succeeded by suppuration in the pituitary fossa, or maxillary sinus; and on the introduction of a probe to the socket, obtained the discharge of half a wine glass of very thin purulent fluid from the interior. The patient then complained of pain, and stated that he felt as though the place was again filling. On some further consultations, the forceps were applied, and the cuspidatus extracted; a large flow of grumous blood followed; the pain gradually subsided; and, two



days after, the postman presented himself in pristine health, to pay his thanks for the relief I had procured him.

Plate IV

shews the state of his mouth, which I modelled from Nature; together with the extracted cuspidatus.

NECROSIS.



Although Necrosis may by some be considered a novel addition to the catalogue of diseases in the teeth; yet as its existence may be proved, as well as its *mode* and *place* of attack, widely differing from any already named, it certainly commands its rank in consideration.

With regard to the distinction between the *common caries*, so familiar to observation, and Necrosis, the former has its origin *within* the teeth, and the latter, to all appearance, *without*.

The first intimation we have of Necrosis or external injury, is a painful sensation, if the hairs of a tooth-brush, a tooth-pick, or the finger nail be applied to the neck of the tooth, that is, where the enamel ends and is met by the gum.

After some time the gum is observed to recede from the part affected, which on being seen more distinctly, a small spot of livid appearance is soon after discernible, whereon a deepening impression is soon after perceptible, which soon

becomes a cavity of a semilunar form on the neck of the tooth, where, rapidly taking an oven-like appearance, the interior of the *root* is as much exposed as the crown is in the case of common caries, but accompanied with much less anguish than what is actually attendant on that disease; attributable, we may fairly suppose, to the extension of the blood vessels, and the increase of sensibility, in proportion to the magnitude of the subject.

In some instances I have known Necrosis to have carried on its destructive progress so quickly, that the patient has had no notice of the mischief, but by the crown of the tooth snapping off in mastication, having been almost previously severed by disease.

Indeed, were there no means by which the progress of this disease could be arrested, *silent decay* would be "a consummation devoutly to be wished," as the situation and existing circumstances of the tooth ever render extraction difficult and uncertain.

That obstructed circulation is succeeded by sphacelus, remains, I believe, indisputable; and

of Necrosis in extremities, from inflammation of the periosteum, I have witnessed injuries to a frightful extent; and this disease, of a membraneous and vascular exterior, causing the total annihilation of an ossific substance, may be, like the foregoing cases, accurately placed to the account of pressure.

ABSORPTION OF OSSIFIC SUBSTANCE,

AND

LOSS of ENAMEL.

THIS is another distressing addition to the many-headed mischiefs resulting from lateral pressure.

Any thing known to owe its existence to the *ebb* and *flow* of a vital fluid, from the human extremities to the branches of the meanest forest shrub, let but that *fluid* be diminished in its quantity, or wholly averted, and diminution of substance soon proclaims the prevalence of an evil, which, if not arrested in its progress, is soon placed beyond our reach by the destruction of the subject.

That pressure excites absorption, is too well understood to admit of doubt; for if necessity requires the application of bandage to a human limb, the extremity so under pressure, will very

soon, in comparison with its fellow, be diminished in substance; and thus we find the beautiful exotic, which fashion imports with cost and difficulty, to decorate the chamber of the wealthy, from confinement of its exuberant roots against the hard and icy sides of its gaudy repository, withers and dies, to the mortification of the owner, from want of help, through ignorance of its malady.

This species of disease in the teeth usually discovers itself by a peculiar tenderness in some one or two of the community, while the whole are undergoing probation by professional cleaning.

A closer inspection of the *tender* subject declares it diminished in substance, while the whole of the enamelled surface is exquisitely sensitive to the touch of the finger nail, and scarcely endurable to the cold scrape of an instrument, which never fails to make its impression.

In many instances to escape pain, the delay of the patient abandons the tooth to the ravage of disease, which soon, imperceptibly, strips it of its silicious covering, and with pain on the one hand, and disgust (from its blackened appearance) on

the other, the sufferer alone finds relief in its destruction or removal.

This peculiarity of disease in teeth, I have found frequent after fevers, or in delicate females debilitated by chlorosis or other long continued sickness.

LOOSE TEETH.



Regarding the teeth (whether those parts visible to the human eye, or those enclosed in the sockets) as so many oblong cones, it is easy to conceive the effect which pressure would produce upon these engines when the set is completed, aided, as the mischief often is, by neglect, having introduced supernumerary guests to the already over crowded assembly.

To this may be added, the consequences resulting from the requisite introduction (for many maladies incidental to human organisation) of certain medicines into the system, whose *acme* of saturation is only ascertainable by the effect they produce on the teeth.

Thus have I frequent instances in remembrance of many whose mouths, once remarkable for the regularity and beauty of their teeth, have so suffered from medicinal conflict with

bodily infirmity, that none of the beauty, and little of the boasted regularity, remained; and though Esculapian skill averted the menace of the grizly monarch, distortion and disease proclaimed the victory dearly purchased.

To return from the metaphor to the mere act of pressure—I would ask what would be the effect of lateral pressure upon a combination of CONES of any sort, supposing them to have been duly arranged *ab origine?*

The consequence, we may fairly presume, would be *displacement.*

And exactly in the same proportion are the teeth affected when assailed by pressure and bodily disease.

In some instances I have seen the central incisors of the upper and lower jaws turned with their edges outward, which very action, when we reflect on the vascular vicinity of the roots to the alveoli, will sufficiently account, in process of time, for the receding of the gum, as it were eaten away by the ichorous discharge excited by distortion.

By this species of action I have often seen

the cuspidati so forced from their station, as to rise or descend in frightful tusk-like form; an annoyance to the opposite gum and tooth, literally taking mastication upon themselves, until, by enlargement or abscess of the gum, the occurrence of inflammation is proclaimed; which, by the speedy absorption of the socket, soon gets rid of the offenders, unless, from disgust and pain, previously consigned to the gripe of the forceps.

DISEASED SOCKETS.

A MORBID affection of the socket usually discovers itself by inflammation and soreness of the gum; while the application of a finger alike proves the instability of the tooth and the advance of mischief within, by the escape of matter without.

This penance, and its painful consequence, is usually visited on the patient, who, from obstinacy or fear, is induced to resist professional assistance in the incipient state of the attack: too often aided by the application of nostrums, under various forms, to prevent tooth-ache—to cure tooth-ache, and to destroy the nerve!!!

I have known many instances of persons suffering a molaris, or grinding tooth, to continue the state of disease by *pressure* from a small *pin-hole* cavity, to complete crown carics, in open defiance of the whole range of quack artillery, which could be brought to bear against it.

One instance (as it will introduce to the reader's attention the roots of a diseased molaris of the lower jaw under this peculiar species of inflammation) I have deemed right to insert.

A young lady, about sixteen years of age, of timid disposition, under great affliction, applied to me for relief from *tooth-ache:* on approaching her mouth for sight of the part affected, the fœtid exhalation was scarce endurable; the tooth with broad caries, painful to the touch, and loose in the socket; while the gum, swollen to a crater-like form, was vomiting the havoc of inflammation to the parts adjacent.

Extraction was unavoidable, and, from the relaxed state of the circumjacent parts, easily affected.

As the fears and pains of my little patient subsided, her courage and composure so far returned, as to give me the history of her sufferings, which she imagined had occupied three months.

The tenderness of the tooth was, as usual, at first feeble and fluctuating, till the commencement of caries; it then assumed a more deter-

mined action, proceeding with such rapidity as induced her to seek relief.

The *caries* (as the common means of cure) was with various applications *stopped* or *plombed;* still getting worse, the *gum* was *lanced.* This process procuring no greater prospect of success —and every *rational remedy* (save extraction) which art could suggest having been applied, Impudence and Ignorance, closing the columns of Quackery, proclaimed certain success from the seeds of henbane; the *narcotic* vapour of which, from their combustion on a heated iron or crucible, being conveyed to the tooth affected, was to complete the cure by drawing forth certain *worms* (the *excitors* of inflamation), which were even exhibited as adhering to the hollow of the tube immediately over the *fons fontis* of *fumigation.*

But that I have actually met with persons so imposed on by this trick, as to believe that worms were really drawn from the teeth, I should deem the elucidation of the deception an insult to human understanding.

The *supposed worms* are the *germs* of the seeds thrown against the sides of the funnel

during their combustion; and are always, unluckily for the operators in this imposition, found a considerable distance from the tooth affected; from whence, had they *been* really extracted, their passage to their discovered position would have been impossible, by the vehement opposition of the *narcotic* vapour.

On examination of the tooth after the departure of my patient, I found the vascular covering of the fangs greatly enlarged; one side appeared stripped of its covering, and exposed the havoc which inflammation had caused on the root itself; upon application of the finger, it slipped over the membraneous surface, as though the tooth had been dipped in grease; the part to which the suspending silk is attached, was, at the time I attempted to insert the needle, in size and shape resembling a *pea*. Slight as the puncture was, it destroyed the swollen fabric, which, after discharging on my fingers a whitish mixture resembling chalk and water, shrunk into the *teat*-like form it now wears.——*See Plate V.* at the *upper* and *lower left corners*.

To what extent the morbid action might have arrived, it is impossible to say; but its de-

vastation is not only apparent in the silicious coating and ossific texture of the crown, but also on the root itself.

I have seen many instances of *pea-form* enlargement of the periosteum of the roots of teeth, which had been long loose and painful previous to their extraction; and on leaving them for a time, invariably found them converted to a sort of osseous substance, which, on being perfectly dried and scraped off, proved its composition to be calcareous earth.—*One of which, for the sake of inspection, I have placed beside the other*, at the upper right-hand corner.

This enlargement and thickening of the membraneous coverings of the roots of the teeth will probably account for those mountainous inequalities of the gums of the upper jaw, immediately over the three molares of each side, by persons advanced in life, who retain all the teeth of the upper set, after having had them loosened by disease, accident, or distortion by pressure.

In cases like these we find the teeth considerably dropped from their station, the fangs blackened (as all bone will when exposed to the

carbonated attacks of the human breath, unguarded by silicious covering), while the whole range of the gums above them resemble a *pasturage* surmounted with mole-hills.

Why (from consideration of the tooth preserved in spirits, the evident effect of destruction by pressure on the one hand, and inflammation on the other) may we not infer, that exostosis had bulbously enlarged the roots; and that the obedient and pliable alveoli had risen in compliment to the enlargement of its inhabitant?

Indeed, the diseased action here may be considered a species of anchylosis; whereby, from received injury, a membraneous covering is converted into an osseous substance, which, by forcing out its former inmate, compels it to seek shelter in a different direction.

This supposition suggested itself to me, on being desired to apply the lancet to a nobleman's gums, under similar circumstances, when, on finding that the gum was of the ordinary thickness, and that the prominences were boney, and not fleshy tumours, I made incision where I could: he was satisfied with the operation, and I with the truth of my supposition.

SPONGY GUMS.



These maladies, as will have been shewn by the perusal of the Opinion on Diseased Sockets, are but exterior proofs of internal mischief—the consequences being most distressing, when confined to the central incisors and cuspidati of the upper jaw.

If these are so crowded (we will suppose from neglect) as to be irregular on the completion of dentition, it not unfrequently happens that one of the lateral incisors is so turned, that its *edge*, instead of the concave part, is brought to bear in mastication on the incisors of the lower jaw, consequently the weight of contact is unduly administered, and thrown on the posterior surface of the *twisted tooth;* of course a protruding action is thus perpetually produced, whereby the root acts on the alveolar processes in opposite directions; as by elevating one end of a lever, the other will consequently be depressed. This

naturally produces heat, pain, inflammation, and enlargement of the gum in the roof of the mouth, near the seat of mischief; and this is one of the affections denominated spongy gums, to which the application of the lancet is from time to time requisite for the reduction of the superabundant blood.

Sometimes the incisors and cuspidati of the lower jaw will be found crowded and badly arranged, so as to exhibit a *central* incisor, so turned as to have its edge projective, or so pressed "*hors de place*," as to be outside the ellipsis, or with its head raised above its fellows. In either case one of the central incisors of the upper jaw becomes exposed to vertical pressure to a distressing degree; and, after the usual gradations of pain, a *pouting redness* is observable in the *gum* above, and of course the lancet is put into immediate requisition, and the patient is periodically relieved.

But the mischief, so far from being checked by this carving, is allowed to proceed unrestrained in its progress; from attention being bestowed to remove the *effect*, while the *cause* remains unregarded.

With repeated wounds the gum at length becomes callous; and, as it would direct the mistaken operator to some more *efficient* method, in retreating from the attack, exhibits the blackened ossific neck of the now loosened tooth, while weeping matter from the socket, woefully attests the misapplication of the remedy.

These unpleasant consequences have, in some cases, continued till the tooth has become so far elongated from its position as to be out of reach of contact with the lower teeth; when tranquillity has been again restored to the interior, and the peace of the patient has been established on as firm a basis as before—the diminished gum and exposed root, or neck of the tooth, alone exhibiting the marks of past mischief.

It is exactly at this period of the complaint, that many monstrous and cruel acts of *Charlatanrie* have been committed on the credulous, accompanied with all the attendant barbarisms of surgery in its earliest stages; when no act of excision was deemed complete without the cordial of the cautery; and a succession of hot irons, which had been glowing under the nose of the

patient, usually summed up the account of his sufferings as the only proper *hermetic* to hæmorrhage.

Frightful as the relation may appear in modern days, the fact may be relied on, that, within these fifty years, a Charlatan, now gone to his account, received fifty guineas from a noble lady now in existence, for what he termed the salvation of her teeth—the two central incisors of the upper jaw.

It is, I think, some six or eight years past, that this lady's mouth, in the common routine of professional avocation was submitted to my inspection.

The teeth of the lower jaw bore ample cause for supposition that they had been suffered to arrange in crowded confusion; the incisors of which, with the cuspidati, formed somewhat of an obtuse angle, so that the two central incisors acted laterally on the insides of the central incisors of the upper jaw, causing them to divide. Subsequent ill health (if I remember right, an inflammation of the lungs), and the teeth having separated as far as possible, the mode of annoyance was changed into a vertical attack

of the lower incisors against the two centrals of the upper; in which they loosened, enlongated, and exhibited all the customary consequences before described. From the appearance of her ladyship's teeth when I saw them, the gums must have reached the acme of disease, by the teeth having ceased to be in contact when he was first applied to.

The previously arranged stipulations having been daily *assented* to on the part of his patient, the cure was commenced by gashing the gums in various places, and then stopping (or rather searing) the hæmorrhage with heated irons, according to the ancient custom of the actual cautery.

Having endeavoured to delineate, to the best of my ability, the various forms under which PRESSURE proves inimical and destructive to the teeth, I should think myself deserving the just epithet of an ignorant pretender, or, at least, empirical professor, if I did not offer to my readers an amendment to the ancient mode of practice, by the proposition of rational palliatives, if not a complete prevention of so common a calamity.

That the plan I am about to promulgate, has long been a favourite idea, which lacked nothing but time and due consideration to ripen into a general and established treatment, all who have known me intimately and personally for years past will bear the most ample testimony.

To the combined observation of the circulation of the blood through the human system, and the course of the vivifying juice in the vegetable economy, I owe the origin of that hypothesis, from whence I drew the principles of my proposed practice, and on which base alone the arguments I shall adduce will, I trust, be established.

I apprehend there need not my feeble efforts in this enlightened age to enforce the belief of the blood's circulation in the teeth!

I will suppose myself correct in the assumption that, as, in the body's circulation, a great portion of the blood is returned by the superficial veins; so it is just, to take for granted, that through each tubified fang of the root, which the most sceptical observer, anatomist or no anatomist, may distinctly discern, the blood is *arterially* thrown to the interior of

the tooth; and thence following a due course of beautifully organized circulation through the osseous part, is (si interim nihil interferat) quietly returned by the periosteum of the exterior*.

It is to the morbid consequences of the arrest of this circulation from lateral pressure, I am most anxious to point the attention of my reader.

From the temporary arrest of a rapid river's *regular* course, what mighty mischiefs have arisen! (independent of the sweeping effects of flood, and although size ace in the scale of comparison, tantamount to hæmorrhage in the human system)—what calamities have not been occasioned to the surrounding neighbourhood by stagnation, and diseasing plagues innumerable!

The painful and inflammatory ulcer of the

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* The description here given of the mode in which the blood circulates through the teeth, I have every reason to believe a correct one; never having been able (even with the assistance of a lens of very considerable power, to detect more than a *single* artery (extremely minute) entering the fang, to ramify through the membrane lining the cavity of the teeth: and I have premised these anatomical observations in order to illustrate the pathology which follows.

extremities, in systems weakened by long sickness, or rendered gross by habits of intemperance, may be ascribed to impeded circulation.

In proof, let us mark the distressing cases of tibial exfoliation after fevers, so luminously stated, and ably treated, by my friend Mr. Whately, of Grafton Street.

To this let me add, though last, fatally not least, the frightful effects of *aneurism;* wherein the substance of bone, nay, joints, muscles, integuments, and the whole articulated system together, have been sacrificed by the pressure of the collected blood in the aneurismal sac, causing absorption and ulceration of those parts.

That accident often proves the midwife to ideas with which the imagination has long been pregnant, we have proofs incontestible; and such was the introduction of the practice I shall speedily have the honour of submitting to those whom it may concern.

When I sat myself down at Brighton, under the kind auspices of my much-esteemed friends, the late Sir Charles Blicke, Dr. Bloxham, and Dr. Tierney (now deservedly raised to the rank of Baronet), with the united approba-

tion of the whole circle of the faculty, to whom I unfolded my views and recommendations, my amalgamation with the medical *characters* of the vicinity was furthered through the medium of the Royal Clarence Lodge of Free Masons, so long and ably conducted by the late Mr. Edmond Scott, together with a personal and professional intimacy with a succession of Hospital Inspectors; through whose means a friendship was formed with the medical officers of the dragoons and infantry regiments, at that time quartered in the town and neighbourhood; all of whom (the dislike is general) would rather amputate a limb than draw a tooth. My proffered services as dentist were no sooner offered than accepted. A note from the assistant-surgeon, or hospital-serjeant, assured the bearer of an attentive reception. These, and the Brighton and Sussex General Dispensary, to which I gratuitously gave my attention, first gave the long-cherished idea a chance of being brought into action; under the hope of giving a respite to the key and the forceps, by substituting the *saving* for the *reducing* system.

As the operation was not attended with an

increase of pain, it was a chance of relief at the price of little trouble—the barracks being so near, and many of the men lodging in and about the town.

Finding, with a very few exceptions (and those only such as length of neglected disease had rendered desperate), that the attempt proved generally successful, my opinion gained confidence; my instruments were more minutely proportioned to the purposes of their employment: and this, together with the rescue of the tooth of a worthy Baronet's lady (to whom and his family I have many obligations), within a few days of her accouchment, who, sighing, informed me every such *state* had cost her a similar loss, determined me against ever extracting a tooth, without *first aiming at its preservation.*

How far differing in treatment from the established mode of the *old school*, will be easily demonstrated by developement. By the old school, I beg leave to be understood, that treatment sanctioned by the practice of professors in past time down to the present day, with a very few exceptions.

For the restoration of a set of dirty teeth, the

calcareous incumbrances are removed by instruments; but the *stains*, by the way of making a long work short, are sponged off with dilutions of sulphuric or muriatic acid; which, by rendering the sound teeth pearly white, from a partial reduction of their enamel, shews off the black of the diseased to a still greater disadvantage than before; while the mouth has the unpleasing sensation attendant on the sucking a lemon through the remainder of the day.

In the morning, from the action of the *carbon* of the breath during sleep, with the addition of the last dinner libation, the lily look and sharp sensation have both receded, when a few succeeding days, aided too, perhaps, by neglect, again plunge the teeth in their pristine appearance.

In a *molaris*, should a caries present itself, it is thought to be arrested in its progress by being plombed—that is, loaded with gold, silver, or lead; if the interior of the *exposed part* is not irritated by the introduction, the *tooth* is indeed *stopped;* but not so the disease, which, in its procedure, enlarges the cavity; the metal plug is insecure by being insufficient; the air, finding

access by small apertures, renders the sensible structure tender; the stopping falls out, and is not unfrequently followed by the loss of the tooth.

In any of the bicuspides, should caries appear, the plugging system is rarely resorted to; but the tooth is, by the application of the file, diminished almost one half its original dimension, as a pretended prohibition to further decay; by this means the cause of the caries is allowed to proceed, which, with the addition of the tooth being laid *bare* to the *quick*, inflammation of the socket follows in rapid succession; and the mere irritation from contact in mastication soon occasions its dismissal.

I have never seen this treatment succeed, but where the tooth, from previous losses, was perfectly isolated; and in that case its preservation was to be ascribed to the non-existence of *pressure*, and not to the loading, or file.

If, from the close contact of any of the incisors of the upper jaw, pressure had produced decay in their sides immediately opposed to each other, (which often have the appearance of two semi-lunar spots, forming, from their close con-

nexion, one dark whole), it is not uncommon to trace the track of a half-round file, such as are used by watch-makers; and, in the extirpation of the black appearance regenerated by disease, leaving a *round hole*, which, on every attempt of the proprietor to pronounce a word with an *s*, caused him to whistle as though he had a *bird call* constantly between his teeth*.

Having thus, in detail, delivered to the reader the practice of former times even to the present day, with my opinion thereon, together with the origin of that plan which avowedly had for its object preservation rather than destruction; I shall at once enter on the promulgation of my own peculiar treatment, wherein, should any parts appear enigmatical, I shall beg leave to refer the solution to the *composition* and *formation* of the teeth.

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* Perhaps, if the Four-in-hand Club were as much in vogue as formerly, this error in practice might be turned to good account: for I remember to have heard of one of that association, who gave his dentist ten guineas for so filing the incisors, that he might at will whistle off his *tits* into full speed, and spit through his teeth like a coachman!!

With regard to the teeth of children, our movements must be governed by the casualties and circumstances under which they are presented; always taking care in due time to remove the *temporary* for the more perfect arrangement of the permanent set.

In the achievement of this point it will be well to observe, that the *incisors* and *cuspidati* of the permanent set being so much larger than the primary, will require an increase of space for their accommodation in the ratio of *two* to *one*. This being alike applicable to *both jaws*, should a *caries* present itself in the first permanent molaris, let it be removed *even before it is painful*, as the only means of avoiding a *meditated mischief:* in *females* I have found it most particularly requisite; rarely having seen a mouth sufficiently capacious to contain all the teeth assigned by Nature.

By this means the second permanent molaris *dresses* into the station formerly held by the first (most especially if the operation takes place before the appearance of the second); space is obtained; and a healthy uniformity the sure reward.

TOOTH-ACHE

RELIEVED without EXTRACTION.

In this species of complaint, the case most difficult to relieve is that wherein continuance, and general pressure through the teeth, throws the patient into *incertitude* as to the point of attack.

This recollection is only to be revived by questions calculated to condense the diverged effects of the disease to its original focus, by way of slackening the thirst of inquiry at the fountain of information.

If in this the finger of Suspicion be pointed at any other tooth, let the eye of Investigation *fall* keenly on it; and some *slight difference* of *colour*, *sensibility when touched*, *or adhesive effluvia on the finger* may convert *suspicion* into *certainty*.

This once ascertained, I have endeavoured to pass dentist silk, of the third size, between the tooth affected and its fellow, from the crown down to the gum. A painful sensation will be the consequence, if this is impracticable on *both sides;* and on its approach to the nose, a *fœtor*, more powerful than from that adhering to the finger, will be perceptible. All doubt being by this time out of the question, preservation is the order of the day.

If this pain from *pressure* is proved to take its rise from the bicuspides, and first molaris immediately under the maxillary sinus, it is the sure production of *Tic Douloureux;* and, if neglected, would soon exhibit all the peculiarities of the *case described.*

With promptitude of attention, the following treatment insures its dissipation, together with the preservation of the teeth affected.

METHOD OF CURE

IN

TIC DOULOUREUX,

From Affections of the Teeth.

Various instruments have been long in use by the *mechanical* part of the profession, for the formation of divisions between the teeth of the artificial set; although their *edges* partook of the quality of the *file*, their *sides* were *flat* and *smooth;* nor was the quality of the *file* perceptible till the *edges* were drawn in a vertical direction to the pressure of the *finger* and *thumb*.

These instruments (having in my own opinion determined on the probability of their advantageous use) I procured to be so prepared, in Birmingham, as not to exceed in *thickness* a small *note wafer;* and at length, from a Lancashire house, in London, obtained them as fine as dentist silk of the *third size*, or the back edge of

a sheet of *thin post writing paper.—See plate VI. fig.* 1*.

Passing these between the oppressed teeth (ever having in mind the French proverb—*N'eveilliez pas le chat qui dort)*, with the gentlest movements, as in separation with a saw, even to the gum on both sides, till the affected teeth are so far at liberty, that silk of the size described will pass with facility; should the gums have been rendered irritable, any soothing spirituous application speedily sets them (as the operation does the patient) at rest.

In some cases of long standing, I have known the nervous system in *this region* so deranged by the height to which excitement had attained, that, although the patient felt himself happily

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* Since writing the above, I have found that a very small spring saw, the blade of which is not thicker than a watch spring, effects the separation of the teeth with much greater facility to the operator and ease to the patient; and I am now in the habit of using it, more or less, every day.—*See plate VI. fig.* 2. The origin of this improvement was the frequent fracture of the former instrument, and the difficulty of procuring them of sufficient delicacy of construction.

lightened of the load, still the *recollection* of the *pressure*, half mentally and half corporeally existed, while the fear of its possible return rendered the shadow as annoying as the substance.

These cases, observable only in persons of weak and debilitated habit *(rare indeed)*, are readily relieved by a slight application of the *electrical fluid*.

For this purpose I had an instrument prepared, of which, *fig.* 3, *plate VI.* is an exact representation, composed of a wooden handle perforated at the distance of an inch, for the passage of a brace of *brass wires*, nobbed at the tops, as conductors: these, that the fluid or little shock might not be imparted to the lips (or, indeed, any where but to the part affected), are *insulated* by small tubes of glass; the lower parts of the wires are attached to a *small jar (*see *fig.* 4.*)* and *electrometer*, by which means, after a short flow of the fluid on the disorganized *scene* of action, tranquillity is completely established.

For the nicety of arrangement in this instrument, I am indebted to the philosophic ingenuity of a much-esteemed friend.

METHOD OF ARRESTING DISEASE

ARISING FROM

LATERAL PRESSURE ON THE FRONT TEETH.

This disease, which has been denominated in my hearing "the *black rot*, the *white rot*, *blue rot*, *thin enamel*, *china teeth*," &c. with an attendant catalogue of causes, from the imbecility of which human capacity recoils with contempt, first meets observation, if in the central *incisors* of the upper jaw, by two specks, parallel to each other, as small as though *Indian ink* had been deposited upon them with the point of a pin, or the finest camel-hair pencil, sometimes with two semilunar spots of *blueish appearance*, similarly situated.

To account for these, I shall only have to dilate somewhat more minutely *on the description* previously offered to the reader's consideration.

The *black spot*, or *blue appearance*, may from thence be deduced to be no other than extravasation in the exterior vascular membrane, situated immediately under the cortex striatus, the enamel, or, in other words, the epidermis or covering of the tooth.

That this is the fact, will be borne out in evidence by the consequences arising from bruises of the *flesh;* and these, I trust, may be truly traced from the child who receives the chastisement of the rod, to the culprit who has the dorsal correction from the hands of the hangman. The punishment, in either case, being justly comparable to a succession of percussionary *pinches* irritatingly applied to a soft surface.

In the commencement, the parts in contact exhibit that happy term for blushing, in the French (whether mentally or corporeally excited) called the *vif incarnat;* next, blue spots become apparent, which perseverance in repetition of percussion will ultimately enlarge to *bursting;* at once declaring their graduated appearance to have their origin in extravasated blood excited by *contact* or *pressure.*

If the swollen epidermis, in a recently effected

pinch, were removed, we should have presented to our sight extravasated *blood;* and if the injury be inflicted on parts of the body where the absorbents are not in force, it remains a *black spot* till the arrangement of a *new skin* dismisses the old from sight and recollection.

Even so with the *nails* of the phalanges of the upper and lower extremities, which are nothing more than a horny epidermis, as being best calculated for the defence of the *vascular cuticle beneath;* which, if bruised, independent of the painful sensation experienced by the proprietor, retains the black appearance of *extravasation*, till the growth of the nail ultimately removes the substance, and the effects of the injury.

In like proportion, *lateral pressure* produces its demonstrative consequences on the teeth; by extravasation in the vascular membrane, which is rendered apparent by the discoloration of the exterior coating.

If, on detection, the requisite aid be speedily applied, the *cure is certain*, and the marks of the meditated mischief scarcely perceptible: and even in cases of lengthened neglect, the *arrest* of the *disease* is equally sure, although its ravages,

like the blackened craters of extinguished volcanoes, remain indelible indexes of past devastation.

For the arrest of the disease, and the preservation of the *teeth attacked*, I have uniformly applied the same remedy as in Tic Douloureux and Caried Molaris; with this exception, that the approaches to final separation are proceeded upon with the utmost delicacy of action, by a vertical application of the edge of the instrument, between the teeth affected, rather than reaching the gum by the commencement at their apex, which never fails, by vibration, to increase the irritation already produced.

To render the treatment more easy of comprehension, I will suppose the scene of action to be confined to the central incisors of the upper jaw.

After having so effected their separation from themselves, as also *their lateral companions*, that the gum may be touched with facility by the *silk*; the patient should be desired to close the mouth as in the act of biting, while the index finger of the operator presses on the teeth in question; which, if annoyed by vertical contact with the

incisors of the lower jaw, will be rendered distinguishable by the touch; in which case they also must be separated, and then lowered by the application of a *flat file* to the edges immediately in contact with the diseased upper incisors under consideration.

Should the *sides* of the diseased teeth be much disfigured, then a fine file may be used with advantage for the restoration of uniformity.

This treatment is applicable to all teeth under similar circumstances, and, if timely applied, never fails of success.

At any rate, this easy attempt at *preservation* is ever worth the experiment, and is a consoling satisfaction, both to the patient and operator, when, under existing circumstances *extraction* proves inevitable.

I must here observe, where the malady has been of long standing, the restoration is not effected without a thrilling sensation, peculiarly attachable to the nervous system, not absolutely *pain*, and yet so nearly allied to it, as to be unpleasant till the separation is perfect, when it instantly subsides; nor can any subsequent application, either of the tooth-pick or other instrument, again awaken it to tenderness.

Where many teeth have been thus attacked and thus relieved, a tenderness will be evinced for some days, on inhaling the atmospheric air with rapidity on the teeth, or the application of cold liquids; which, however, on the circulation gaining its wonted course, is imperceptibly lost in the general comfort afforded to the community, and the little assistance they afterwards require from the Dentist, with the exception of those occasional visits, which are at least the production of one of the blessings of human life, the consolation of a clean mouth.

The instrument, as before observed, was originally introduced for the formation of divisions in *sea-horse* substitutions, resembling those natural partitions between the teeth in the human subject; and it was only necessary, on my discovering their utility as applicable to the preservation of the teeth of the living, to have them made as thin as they could be, to have the possession of the point desired.

EXPLANATION OF PLATE VII.

The *First* small tooth on the upper row represents the primary incisor of a child, its edge marked with incipient decay from lateral pressure.

The *Second,* a primary cuspidatus with similar injury.

The *Third,* a left central permanent incisor, where incipient disease is apparent by a yellow stained spot on the inner edge.

The *Fourth,* the left *central incisor* of a young Frenchman, where lateral pressure had arrived at such a height as not only to burst the sides, but *centre.*

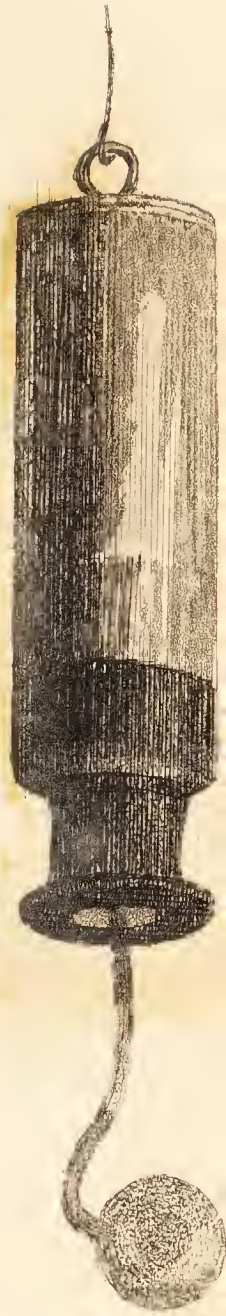
The *Fifth,* a distorted *central incisor,* over which its lateral companion had protruded, and, by pressure, produced the disease exhibited.

The *Sixth.* Frightful effects of lateral pressure, extravation, and absorption, in a *right central incisor,* taken from a Quaker girl at Dover, under seventeen years of age, its neighbour having been wasted to a *stump* by the same disease; both were extracted to give place to substitutions.

The disease, independent of its ravage on the enamelled part, will be seen to have nearly severed the ossific root; its situation, when extracted, being in the mouth conformable to its present representation.

The *Seventh.* The left lateral incisor of a young lady under twenty, which, having exhibited the usual *process* of *decay* from lateral pressure, had suffered the sensitive interior of the tooth to be so much exposed by the file in *extirpation* of the disease, that *inflammation* of the *socket* succeeded, and proved, in spite of every effort, the precursor to its extraction, which I was the more anxious to avoid, as the right



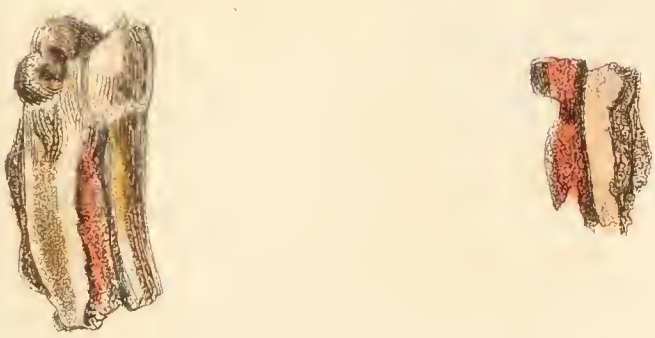
















central and lateral incisors had been previously lost by mismanagement under lateral pressure, and replaced by pivoted substitutions.

The *First* on the *Second* Row. A cuspidatus, the destruction of which was commenced by lateral pressure on one side (the mark being visible), and completed by the collapsing of a metal ligature in support of *substitution,* traceable by the circle of extravasated blood above the enamel.

The *Second.* Two diseased geminated molares of the upper jaw, connected by alveoli, the roots of which had transpierced the under plate of the maxillary sinus; which, from the effects of previous inflammation, came away in their extraction. This case is detailed at length in page 108.

The *Third.* A molaris of the upper jaw, diseased from lateral pressure, which, on being held to the light, shewed the whole of its interior to be excavated.

The *First* on the *Third* Row. A molaris of the under jaw, devastated by the same disease.

The *Second.* A bicuspis, the root of which exhibits *Necrosis,* while the *head* is perfectly sound.

The *Third* and *Fourth.* A brace of *dentes sapientiæ,* or last molaris, exhibiting the ravages of lateral pressure.

The *Fifth.* A large molaris in a similar state of destruction.

The *Lower Row.* A molaris of the lower jaw with diverged fangs; and another of the same kind, the fangs closing at the points, with shoots of alveolar process passing between them; in the center of which, are presentation of the piece of alveolar process as detached from the root.

EXTRACTION INEVITABLE.

OPINION ON MODES OF SAFETY.

HAVING, I trust, clearly demonstrated, that the end of *inflammatory action* is *sphacelus*, and, as in such cases, established practice has approved the propriety of removing morbid parts for the welfare of others, I shall proceed to the statement of those cases in which extraction appears inevitable, and ultimately productive of general advantage.

That the comments I shall offer in this opinion may be properly commenced, and as correctly carried on, I must refer my reader to that material moment of change between the primary and permanent teeth of a child, and in which stage the *key* and the *forceps* have such distinguished parts assigned them.

In general, the cases which require their assistance, speak for themselves; and in pity to the

feelings of the little sufferers, the moment the necessity of the operation is manifest, the sooner it is achieved the better; and with instruments so conveniently contracted in size, that the eye of childhood may not magnify the evil, and although they must be slightly *felt*, let them never, if possible, be seen.

Thus, covered by kindness, directed by judgment, and consummated with skill and dexterity, a double victory often graces a single assault; while the rapidity of the movement being imperceptible to the parties, the terror of a second conflict is spared, and the recollection of past anxiety drowned in the anticipation of reward and promised pleasure.

For the removal of permanent incisors, cuspidati, and bicuspides, the forceps certainly appear to possess the priority, as far as regards their perfection as an instrument; but *they* should be then so *bowed* in their *bite* as only to collapse on the *neck* or unenamelled part of the tooth, else it would be shattered by the mere pressure requisite to its intended removal.

But the application of the forceps must be ever governed by the situation and circumstances

under which the teeth are presented for operation; as in some cases the use of a small (or child's key) is an indispensable precursor to safe extraction.

If stumps of the bicuspides present themselves, they are, under the pressure of a steady hand, removed with greater facility by the *punch* than any other instrument; which indeed acts equally well on the stumps of the molares themselves.

In the extraction of the molares (with the exception of those literally so loose in the sockets, as to be perpendicularly plucked forth by the forceps) good consideration of their situation, together with a calm combination of judgment and skill, prove requisite for their safe and complete removal.

To the sanguinary and antiquated style of slashing the gum, with the phleme, lancet or bistory, I have ever evinced decided objection, as productive of no other effect than increase of pain to the patient, while the attainment of the proposed purpose is ever out of the pale of probability: namely, the facilitating the elevation of the tooth; and from what?—a *bony case*, to which the gum acts but as a covering completely com-

petent to all consequences of contact from sharp-edged instruments; and only to be injured through the effects of incautious haste, and those combinations of uncontrolable circumstances, which are ever seen to circulate amidst the casualties of the profession.

In all operations for the relief of suffering nature, opinion has ever pointed the *path* by which science has conducted skill to the accomplishment of its design; and, to the variation of opinion, even from times the most remote down to the present day, must be ascribed the facility with which operations, from the most trifling to the most formidable, are performed.

On this ground I presume to venture the opinion of its being safer, in the extraction of molaris, to detach the gum from the neck of the tooth, by a sort of blunt lancet. In the application of the *key*, the fulcrum is most effective (unless circumstances of decay prevent it) on the *outside*, so as to produce the first movement of extraction from within.

A slight investigation of the human subject will substantiate this suggestion, as the alveoli in both jaws will be ever found to offer least resist-

ance on the outside; and this opinion is further strengthened by the frequent *curvature* of the inner root of the first molaris of the upper jaw, which, forming in its socket the segment of a circle, often opposes such an *arch* of *strength* as to resist the most tremendous efforts at removal, ultimately defying defeat by breaking in the contest.

When, by a suffering of gradually increased pressure, the tooth obediently inclines to the indication of the instrument, the *key* has done its duty ; while the ready forceps, by a perpendicular action, easily extricates the tooth and fangs free from fracture.

REAL AND CREATED CAUSES

OF

DIFFICULTY IN EXTRACTION.

That the casualties of situation, at which I have glanced in the last Opinion, are not the only ones which offer difficulties in extraction, may easily be conceived by all who have noticed formation in the fangs of teeth—either as anatomical investigators, or casual contemplators of the works of Nature.

The difficulties to which I presume to point attention, are, in my estimation, greater, because impervious to human perception—and only declaratory of existence, by the circumstances attending their attempted removal.

The molares, for instance, of the under jaw, have been known to yield to the indication of the instrument—nay, rendered obedient to lateral motion to a certain extent; and yet their removal not to be effected, but at the price of

protracted pain, anxiety to the patient, and often disappointment to the operator.

For should a molaris, thus situated, receive a pressure on its roots beyond the capability of resistence (the real cause of difficulty not being understood), a fracture is the inevitable consequence: the head of the tooth proves the sole reward of imprudent perseverance; the patient vents his vexation at the accident, while the perturbed operator endeavours to palliate, by soothing applications to the roots now destined to remain, from increased difficulties and the fears of the patient; who, at every succeeding twinge of inflammation, execrates all attempts at extraction, and confidently advises the whole circle of his acquaintance to suffer *death*, rather than have a *tooth drawn*.

The causes, which too often produce the effects here described, are, as I have observed, impervious to sight, and arise entirely from the situation of the roots or fangs; some being diverged, so as to form an extension considerably wider than the alveoli through which they must pass in extraction, and on that account rendering the operation full of difficulty and danger; while

some, on the other hand, indulging in the opposite extreme, represent something like an imperfect *parenthesis*, or the combination of the index finger and thumb; through the aperture of which, a portion of the alveolar process absolutely shoots from one side to the other, as it would prove a bar to its removal.—*See plate VII, fig.* 1, *in the last row.*

In any of these cases, supposition can alone suggest the probability of their situation; and as mischief is as likely to arise from the one as the other, safety claims the careful closing of the operation, by the perpendicular application of the forceps, which should be strong in proportion to the magnitude of the subject.

When a molaris of the lower jaw, under such suspicious circumstances, is properly embraced by the forceps, a little management or vacillation alike disengages the divergescent fangs from the *barring* alveolar processes: and although this treatment of impediments may somewhat lengthen the operation, the comfort every one feels who has done his duty, and the encomiums of the patient, as he peruses his past danger, are his sure reward.

Another formidable variety in impediment to extraction having presented itself in my own practice, may again, and therefore must not pass without notice.

A brace of diseased molares of the upper jaw having long annoyed a patient, even till the gums manifested the mischief of suppuration, he was at length determined on their removal. According to the old system of one at a time, the operation was commenced, and, to the surprise of all parties, ended not only by the removal of both at the same time, but with the under plate of the maxillary sinus.

Their extraction was for some time impeded by a most copious discharge of blood and matter; which soon after ceasing, a tender mouth for a few succeeding days proved the only penance of the patient.

On examination of the faulty teeth, they were found closely united by *shoots* of the alveolus, while the long fangs of the first molaris were discovered to have transpierced the lower plate of the antrum.—*See plate VII, fig. 2, of the second row.*

In this case the real difficulty would have

been mortifyingly multiplied, had the patient proved of weak or cowardly disposition; but by the evincement of a calm and collected conduct through the contest, it was happily terminated according to his wish, as far as regarded the troublesome tenants, whose ejectment from the premises he humourously declared was desirable, although purchased with the loss of a portion of the fixtures.

The created difficulties alone originate from the little mind and want of self-possession in the patient; which often give rise to circumstances which, though fluctuating between the ludicrous and the vexatious, often spread to the prejudice of the operator*.

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* The honourable sister of a worthy deceased Baron sent for me, on my residence at Brighton, for the extraction of a tooth; and, after detaining me *three hours* with details of the causes which had made her a coward, pertinaciously resisted all attempts at removal; till, wrought to irritation by pain and the reproaches of her family, an hysterical affection suppressed further resistance, and the tooth was extracted under temporary aberration of intellect.

An affair, similarly tedious in its commencement, though varying towards the whimsical in the conclusion, attended

Where great alarm has been occasioned in the mind of a patient about to submit to extraction, I have in part dissipated the dread, and excited a confidence, by yielding to their request in applying the instrument to the tooth, and then removing it; till, by being familiarized to its partial pressure, their own consent has accelerated the operation. A Major-General, as much dignified by the confidence of the Royal Family, as by the possession of every manly and virtuous feeling, once, under such circumstances,

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one of my many professional visits during a short residence at Dover. A pilot's wife, whose rotundity of habit would have caused twenty stone to kick the beam, was pained and alarmed to agitation with the toothach.

Anguish and argument together succeeding, a *trial* for *ejectment* proved fortunately successful: but as the annoying tooth was in the act of resigning possession, under the pressure of the instrument, my portly patient, whose ruddy arm encircled my neck, either actuated by alarm or extacy, so far lost her self-possession, as to throw herself upon me; whereby my half-genuflected position proving insufficient to the *weight* of such an honour, the affair was happily finished by the *flooring* of patient and practitioner; and, though least in the joyous scene of success, I had nearly suffered suffocation from rapture.

absolutely bound me by word of honour not to take out the tooth till he gave me permission; although the instrument was on the tooth, and taken off half a dozen times previous to its extraction.

The quantity and variety in cases of extraction, would of themselves fill a volume; but they are ever more or less disastrous, when the hands of the patient are *snatchingly* applied to those of the operator at the critical moment, certain to occasion fracture or some other material mischief: and if the parties are weak enough to resist completion, the consequence (for few will consent to the confession of their own cowardice) never fails to fall with fearful approbrium on the operator.

For the extraction of the sapient teeth, it is almost reduced to an established practice, to place the patient on a pillow upon the floor; the operator bending over them from behind; whereby a gentleman, eminent in the profession, was, through a fear-excited effort of his patient, from the overbalanced preponderence of his head and shoulders, precipitated from his posterior station, to one more prominent on the carpet,

than suited the gravity of his calling or disposition.

This *over-head* mode of extraction has even been applied to molares, by the patient being placed in a chair, with the operator mounted on another behind; from whence a surgeon and apothecary in Shropshire, from a convulsive plunge, was thrown to the ground, and narrowly escaped a fractured skull.

When about to operate, the fewer persons present the better:—fear is ever contagious, and never fails to lay the foundation of misadventure.

In a boarding school where I attended, the children were imprudently placed in a corner of the apartment, like so many encircled lambs for the impending slaughter. Previous to my appearance, a chair had been placed in the middle of the room, and by its side a table loaded with basons, jugs of water, tumblers, towels, and the paraphernalia of operation.

The first who took her station was a parlour boarder; and, though young, old enough, as I afterwards thought, to have acted better. All went on well till the critical moment of removal;

when, seizing the instrument with both hands, and, as if they were insufficient to *stay proceedings*, the feet flew up to their aid; and, coming in contact with the leaf of the table, overturned it and the contents; which, with the accumulation of simple and compound fractures, "past all surgery," inundated every part of the room; while the discordant shrieks which succeeded the *crash*, from all the party spontaneously joining chorus, resembled the yell of an Indian hord, dispersed by the explosion of a bombshell or a Congreve rocket.

Above all, the created difficulties are increased by attendance on persons of distinction, or those elevated in the scale of society by birth or fortune; sometimes the consideration of their rank (surrounded as they are by an atmosphere of flattery) suggests the supposition that their feelings are more acute than common persons, and their powers to endure sufferings proportionably less: this, aided by a desire of success founded on the hope of future aggrandizement, either by report or reward, often excites agitation, at the moment when firmness is most requisite, and

defeats the design intended, by failure in execution.

The conclusion which follows is frightful to the unfortunate party:—no considerations are suffered to counterpoise the weights which sink him in estimation; and unless scientific rank should produce a preponderance in his favour, he falls into the flood of fashionable prejudice; in which overwhelming vortex of opinion, want of success is want of ability.

Of the truth of this feeling, his present Majesty appeared to have been perfectly apprized; which I shall respectfully beg leave to illustrate by an anecdote.

A tooth which had for some time annoyed his Majesty, was condemned to extraction: the dentist of the household was commanded to attend. On his introduction by the page in waiting, the Sovereign, with his accustomed good-humoured condescension (feeling the probability of the first professional visit producing alarm in the operator), said, "I don't know whether *you* are afraid of *me;* but I can tell you, *I am* of *you.*" The dentist bowing, he replied, "he

hoped all would go well."—" Oh, I dare say," said the Sovereign ; " but I think it would go better with me, if I have a little *brandy*."—" After the operation, I presume."—" No ; before," replied his Majesty, " to give me courage."—The spirit being brought, the page was about to present it. " No, no," exclaimed the King, " let the dentist do it—he makes me a coward, let him give me courage." The brandy was accordingly poured out, and presented by the dentist; to whom his Majesty, smiling as he refused it, replied, " I have no need of it; but was merely anxious to observe if your hand was steady ! ! !"

His Majesty's knowledge of human nature justified the trial, and a successful operation was the consequence.

INSTRUMENTS.

For all operations, as applicable to the relief of human nature (with the exception of teeth-extraction), instruments have been, and are prepared; by which the extent of their action on the parts requiring their aid, is mechanically known, to the utmost nicety, by the operator; or, at least, capable of being so directed by his judgment, as to be equally effective.

But with extraction, all our instruments compel us to the confession of imperfection; while our *theory* says little more than, that, if a tooth is to be *pulled*, it must be effected by the key, the forceps, or the punch, the rest being left to practice and the doctrine of *chances*.

With instruments for the teeth, habit has really more to do, than would readily find credence from relation; although the truth of the

assertion may be established on the ground, that an angler or billiard player will execute best with the rod or cue to which he has been most accustomed.

In the course of my own practice, I have seen and tried many instruments; and, as therein *facility* and despatch were the leading features in consideration, ventured such improvements in my own as appeared most likely to achieve the point desired.

Feeling assured that the cause of the many accidents incidental to teeth-extraction owe their origin to the paucity or want of adaption in the instruments; I found it requisite to provide myself with a *gradation* of instruments, each capable of three or four variations in point of claw, and adaptable to *one* handle, for the convenience of carriage: and, although my out-door visits were literally made "*chargé du fer*," and their bulk in the pockets much resembling the pick-lock bunch of a blacksmith; yet I ever found myself recompensed by the brevity and comfort with which I accomplished my purpose.

The means of extraction (as far as regards the application of the *key*, however diversified in

size and form,) is no other than a union of pressure between the *fulcrum* and *claw;* which a slight consideration of their mechanical principles will suggest to our imagination their probable production from the forceps; these, if we may trust remote antiquity, being the only instruments applicable to extraction; great caution ever accompanying their use, from the incertitude of success in the operation; which, if beyond the force of a pair of *leaden forceps*, was pronounced impracticable, and the patient soothed, or thrown into slumber through the power of priests and music, according to the custom of the times.

A pair of these instruments are stated to have been hung up in the Temple of Apollo, as the criterion of attempt at cure by extraction.

That the *forceps* were the foundation of the *fulcrum* and *claw* in the *key*, will be rendered further apparent by inspection of the *parrot-beak forceps;* where the short claw serves as a fulcrum to the *long one*, in lateral extraction of such teeth as are out of the protection of the *cheek*, or the bulging of the *buccinator muscle:* for could we so dispose of the handles of this instrument, as to adjust its application to a molaris, it would be

extracted with as much facility as with our modern key; which is precisely the same in principle as the *forceps*, only placed at the end of a lever, with the *short claw* rendered obtuse and *bolster-like*, for the sake of security, and the prevention of unnecessary pain; while the action which causes the claw to collapse on the tooth, and ultimately effects its extraction, is transferred from the side to the opposite end of the lever, free from all impediments and at the entire disposal of the operator.

As the length and situation of the roots of the molaris offer the only cause of resistance and difficulty in extraction, the *punch* is never brought to bear its part, but for the removal of some single fang, isolated by disease, or left by some accident in operation; and this, too, when inflammation, or the filling up of the alveoli, have rendered it high above the gum and unsteady in its station.

Under these circumstances, the punch, an instrument of *awl-like* form (replete with variety as to length and shape, yet all agreeing at the point in the resemblance to the short claw of the *parrot-beak* forceps) is steadily made to press, in an angular direction from the elevation of the

elbow, on the stump destined for removal; while the left hand of the operator, supporting the jaw of the patient, is made to act as a fulcrum in an opposite direction. I have generally found it convenient to have, in the variety of key-claws, such a gradation, from the narrowest to one of such breadth, as nearly to embrace the whole length of the tooth under extraction, and most especially where such tooth is isolated; as thereby avoiding all chance of slipping off, from any fear-excited movement of the patient or other casualty: and, indeed, when with such a *claw* the bulb of the fulcrum is tightly pressed in the opposite direction, the tooth is almost as much at the disposal of the operator as if clenched in the claws of the *forceps;* and, if loose enough, may be taken out as well perpendicularly as laterally, without any further rotation of the instrument.

Having observed, throughout the various extractions I have witnessed, that the *pain* is trivial in comparison to the *apprehension;* I have ever given the preference to the possession of instruments, that the eye might so decidedly direct the choice of one, that its application might be effected unseen by the scrutinizing search of the patient.

Hence the amazing length of lever in many of the ancient and modern instruments are but appalling counsellors to fear; and are of no use but to check courage absolutely requisite to the completion of the operation*.

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* Against the unnecessary size of instruments, and the being content to make *one* serve every purpose, the following anecdote will prove a sufficient elucidation.

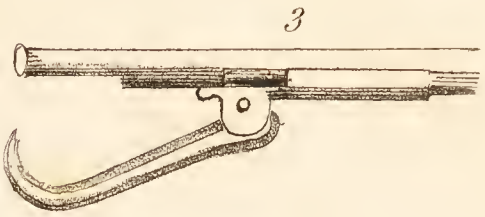
A most respectable apothecary and accoucheur, whose name, by the blunder of an Irish acquaintance, was thought to resemble mine, was applied to in my stead to remove a painful *bicuspis* from a dowager lady of title. In the performance of the operation, from the magnitude of the *claw* and instrument (a servant of all work), the anterior and posterior companions, though innocent of crime, narrowly escaped transportation with the guilty. On the discovery of the mistake, and my attendance having been deemed requisite to their restoration, I found no small difficulty in pacifying the vexation of my patient, who, whatever her religious opinions might be, as far as regarded the *loss* of her teeth, was no Trinitarian: and after assuring her ladyship of their future stability, by proper applications, I was induced to ask what kind of instrument had been used. "Instrument, sir?" echoed the lady in Irish accents, rendered acute by irritation, "upon my honor, to me it appeared no other than the key of "a jack, or the winder of a register stove!"

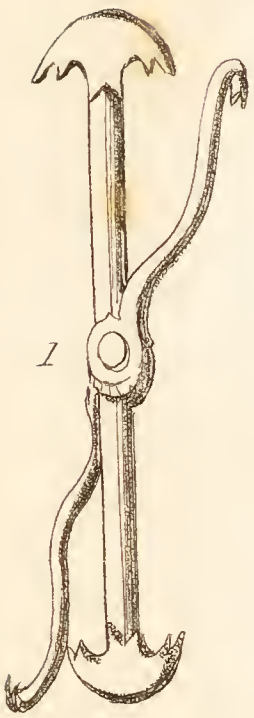
PLATE VIII.

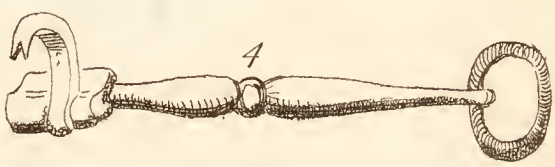
ANTIENT INSTRUMENTS.

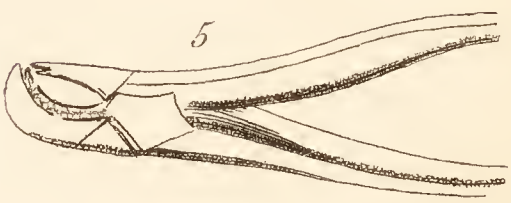
1. An Instrument of the key species, of great antiquity, with a short claw, similunar fulcrum and angular edges, certain to break all the alveolar processes, and most of the teeth to which it could be applied.
2. Another, on the same principle, with a moveable fulcrum; intended probably as an improvement on the first.
3. An antiquated key instrument, with a sliding claw, adapted to various sizes of bicuspides and molares in lateral extraction, previous to the alteration in the position of the lever, and the more modern invention of the crucial handle: the instrument, in point of appearance and effect, bears great similitude to the *parrot-beak* forceps.
4. A key instrument of ancient form, which, from similarity in principle and application, may fairly be supposed (if not the actual foundation) to have suggested the improvements in those of the present day. The milled part of the *lever,* opposite the claw, appears, when caused to collapse on the tooth by the rotary motion of the hand, to have effected

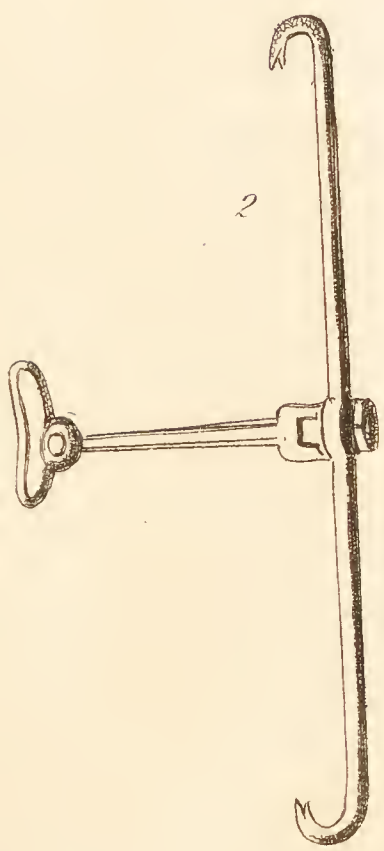


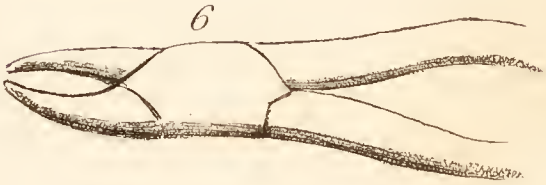

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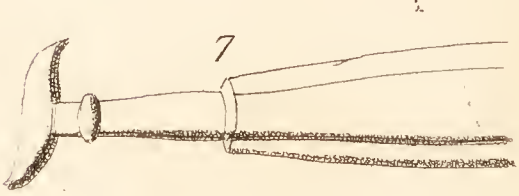

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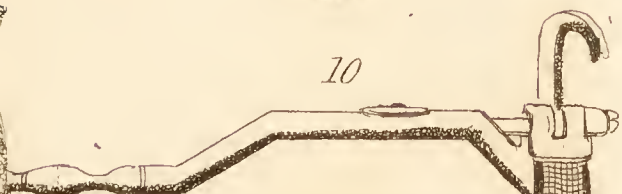

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extraction by the insertion of a stick through the ring at the end. This instrument was in use in the reign of Queen Anne.

A foreigner of distinction, to whom I once gave it, with others, for inspection, explained its use, saying, in his youth he had seen such in use by travelling *tooth-drawers* in the streets of Italy and Sicily, who made a further display of their skill by extracting *stumps* on horseback with the point of a drawn sword.

5. The parrot-beak forceps.

6. Straight forceps.

7. Ancient punch.

8. Common punch.

9. Common hook forceps.

10. Modern key.

LUSUS NATURÆ.

As this species of variety is pretty plentifully sprinkled throughout the habitable globe, the teeth, in common with other branches of the human system, occasionally come in for their share.

That this is the case, the various philosophical and anatomical cabinets of the distinguished foreign and domestic universities will sufficiently establish. But, as investigation ever courts identity and occular demonstration, I shall accede to the common desire by the illustration of two remarkable cases.

The first was the son of the chief proprietor of bathing machines at Dover, who, although, at the time I saw him, eighteen years of age, had obtained *only two teeth*, namely, the right cuspidatus of the upper jaw and left cuspidatus of the lower jaw: these had regularly made their appearance as primary teeth, which had regularly

fallen out and given place to the permanent, but without any further addition to the set.—*See plate V.*

The appearance of this young man's mouth, while taking his food was most remarkable, as no teeth could ever form contact in mastication. The nose and chin were perpetually approximated; while the cheeks and lips being thrown into wrinkles, exhibited those eventful appearances attendant on disease, accident, and accumulation of years.

Indeed, the eye of observation was compelled, in the perusal of his countenance, to perpetual vacillation between youth and age: for, if the lower parts of the face were veiled or not regarded, juvenility, with all its vivid accompaniments, announced its station;—but if inspection followed in *vice versa ratio*, the "sans teeth" season appalled the beholder, who, turning in disgust from the mumping mumble of inarticulation, seemed, in the contemplation, to question the evidence of his eyes.

The second case was of a young gentleman, whom I was called to attend at a respectable classical seminary in Brighton. On my first

visit, I discovered considerable ulceration in the gum, fœtid discharge from the socket, with instability of the right lateral incisor. How long he had continued in the state I first beheld him, I could not justly ascertain. On the application of a dental mirror, I pronounced the case to be Lusus Naturæ of the species of geminated lateral incisor; the two teeth being perfectly formed, and, as it would seem, *cemented* together; while the lowest edge of these united teeth coming in contact with the tops of the lower incisors, occasioned in mastication a vertical pressure on it, and had been productive of the consequences apparent on my first visit.

A physician, who had been called in prior to my seeing him, pronounced it a case of exostosis. On giving me the meeting in my second visit (on which occasion I urged immediate extraction, as when I first saw him) the operation was opposed on the score of his general weak health, and the probability of saving his tooth.

However, a third inspection, when failure in his appetite and loss of sleep had considerably heightened my little patient's symptoms, acquiescence in extraction was accorded, and the











little sufferer quickly lost the recollection of his tooth and the trouble it occasioned, in the full enjoyment of bed and board.

PLATE V.

1. Mouth of the bather boy; the upper and lower cuspidati in their proper situations, unattended by other teeth.

5. The geminated lateral incisor of the upper jaw, in the lower corner of the plate.

DERANGED POSITION.

As deranged position is, for the most part, the result of *neglect*, this Opinion will require but little on the score of statement, and a mere substantiation of facts, with their attendant means of remedy.

Out of the many cases of successful arrangement after mal-position in the central incisors in which I have been concerned, one will be sufficient for the establishment of the remedy, which, for simplicity of mechanism and power of effect, would render neglect of application criminal, wherever it might be called into action by existing circumstances.

On a casual inspection of the mouth of a young gentleman, son of a Member of Parliament, at a respectable Classical and French Seminary in Brighton, I discovered *deformity* in one of the central incisors of the *upper jaw*, which, from being out of line with its neighbour,

was shut in by the incisors of the *lower jaw*, so as to be behind them.

A small piece of *sea-horse tooth* was fashioned to adjust and rest on the two incisors of the lower jaw, immediately in contact with the *displaced tooth*, to which it was opposed on the closing the jaws in a slanting direction, on the principle of a wedge. In the shank of the instrument, or that part of it descending to the gum, six vertical parallel perforations were made for the reception of three ligatures, which fastened on the neck, or below the broad part of one of the teeth.

After having been rendered, by the *file* and the *graver*, perfectly supportable in the mouth, a continuance of its use for a fortnight completed the restoration.

When this little ivory instrument can be adjusted and attended to by the operator, or some one rendered acquainted with the process, little or no difficulty arises in the achievement; but if at distance, and with wayward children or timid parents, a metal gag on the same principle is adjusted on the teeth, so as to be taken on and off at pleasure.

As this mode of treatment is applicable to all

front teeth in a similar situation, one illustration is sufficient.

As most cases of deformity and mal-arrangement arise from the obstruction the permanent teeth meet with from the primary, many distressing consequences arise, even in the cuspidati and bicuspides of both jaws—by passing out beneath the opposing teeth in the interior of the mouth, productive not only of impediments by restricting the action of the tongue, but the sure destruction of the anterior and posterior companions.

A casualty, wherein attempt at recovery was attended with success, is here submitted for consideration.

The delineations in Plate IX, A, B, exhibit representations of an imperfect and perfect *lower jaw* of a young lady, who, whilst prosecuting her studies for a governess, at a most respectable seminary of female education, in New Steyne, Brighton, applied to me for relief in defective enunciation, occasioned by the protrusion of a permanent tooth, denominated the second bicuspis, through the internal part of the left side of the lower jaw (as represented by letter C), owing

to neglect in removal of a diseased primary molaris, marked D, which, as the first step towards remedying the existing evil, was immediately removed; but without the achievement of the effect desired: as, from the interruption offered to the motion of the tongue by the protruding tooth, *articulation* was still inaccurate: to obviate which, I resolved on the removal of the ill-placed cause of the defect; under the conviction that, on the rising of the dentes sapientiæ in the spaces marked E and F, the pressure of the teeth would render the vacuum scarcely perceptible. The proposal having been acceeded to, the operation was commenced by the *key* instrument: but in the cautious process of extraction, as well to prevent fracture as the disturbance of the neighbouring teeth, the progress of its elevation caused it to take its proper station in the jaw, by the removal of that which had laid the foundation of the meditated mischief.

The probability of its preservation became apparent on the instant; and, by the jaws having been kept apart for the space of twenty minutes, the bleeding suppressed, and mastication avoided on the feeble side for two succeeding days,

correct articulation was effected, and the jaw since rendered perfect by the addition of the dentes sapientiæ, as in figures B, G, and H.

Cases variously distinguished by situation, but under similarity of circumstances, have frequently since presented themselves, wherein I have found this sort of treatment uniformly crowned with success.

In jaws of small dimension, where, with all due attention, the second bicuspides come too late, they will be frequently found impeded in their elevation, from want of space, by the first permanent molaris.

In this case the molaris should be immediately extracted, as the only means of perfecting the arrangement of the set, the avoiding deformity, and the certain destruction of the rising tooth, and also of its contiguous associates.

SUBSTITUTIONS.

THAT these assistants have been projected through man's ingenuity, by the bounty of benign Providence, who, even before our formation, had considered well "the long train of frailties flesh is heir to," there is little doubt.

In the Fowl creation, destitute as that species is of *teeth*, mastication is transferred to the gizzard, or preparatory stomach, where muscular strength, aided by gastric lubrications excreted on the object of digestive action, has been known to indent even metallic substances.

The herbage destined to the support of the vivifying principle in the graminivorous animal, undergoes two actions of the *teeth* and *stomach*, before the perfect preparation of its essential qualities are absorbable by the lacteals.

Man, the omnivorous animal, and his other self, "of self same form but softer mould," is

spared this double process, by mixing the lubricative moisture, (or that requisite to the conversion of his food into chyme previous to its passage into the pylorus or outward stomach,) at the moment of mastication.

The warm-hearted disposition of the benevolent master in the rewarded remembrance of the past services of a favourite horse, fatally finds, in disappointment, that his kindness out-runs discretion, who would attempt to lengthen life after accumulated age had deprived his faithful servant of his teeth.

Man, the acknowledged image of his Maker, and the whole human race, are destined by his goodness to alleviation in this malady, whether partial or total, or occasioned by age or accident.

The many instances of fatal terminations in spasmodic attacks of the stomach, may fairly be attributable to the lack of proper preparation of the food for that organ, through the non-existence of the masticating power; and although proofs may be apparently exhibited, where, through accident, disease, or age, mastication has been for years effected by the gums alone; yet it has ever been imperfect, as far as regards

its preparation for the first process it undergoes in the stomach; which (till relieved by the stimulant application of *ardent spirit*, and the succeeding eructation from evaporated fluids excreted in the double capacity of defence against pressure, and as emollients to the matter in digestion) never ceases to proclaim to the proprietor the weight of obligation by which it is burthened.

For the united advantage of speech, ornament, and mastication, substitutions are so exquisitely fabricated by the artists of the present day, as to leave no regret in the minds of the wearers for the loss of their quandam acquaintance, which had probably proved a source of uneasiness from their first appearance to their final departure.

Where the loss in the front has been confined within the precincts of paucity, the deception has been so perfect in the association of art and nature, that *husband* and *wife*, and brother and sister, have flown to the same fountain for relief, each ignorant of the other's misfortune.

MEDICINES.

So many and various are the nostrums offered for every case wherein the teeth and gums are concerned, that it would be "to take up arms against a sea of troubles" but to name them, much more to enter into investigation of their real or pretended merits.

That any composition was ever yet prepared possessing the power *permanently* to *remove* the *tooth-ache*, I have never yet seen, although I believe I saw *all* that had obtained *such credit* on the table of an illustrious foreigner, whose tooth, from disease and his own neglect, I was compelled to extract; by one of which, he, from the irritation it produced in his throat and stomach, considered himself poisoned, having had it administered by the mistake of his valet, instead of an anodyne from the apothecary, after the operation.

But though I have not seen this wonder, others may have been more fortunate, who have gone further a-field, and "travellers see strange things."

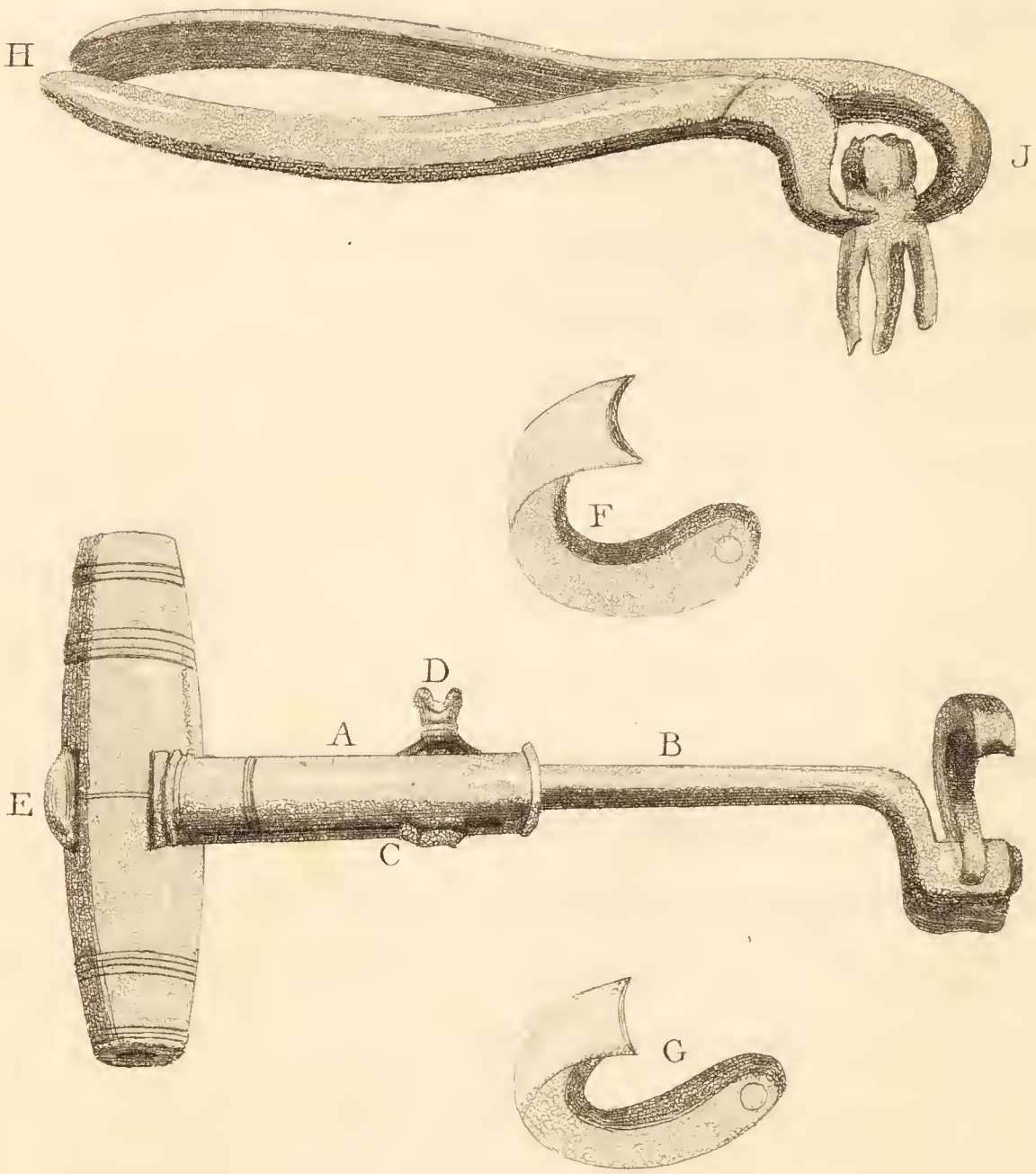
If we but mark the *analyzation* of the *tooth-ache*, the thing will appear impossible.

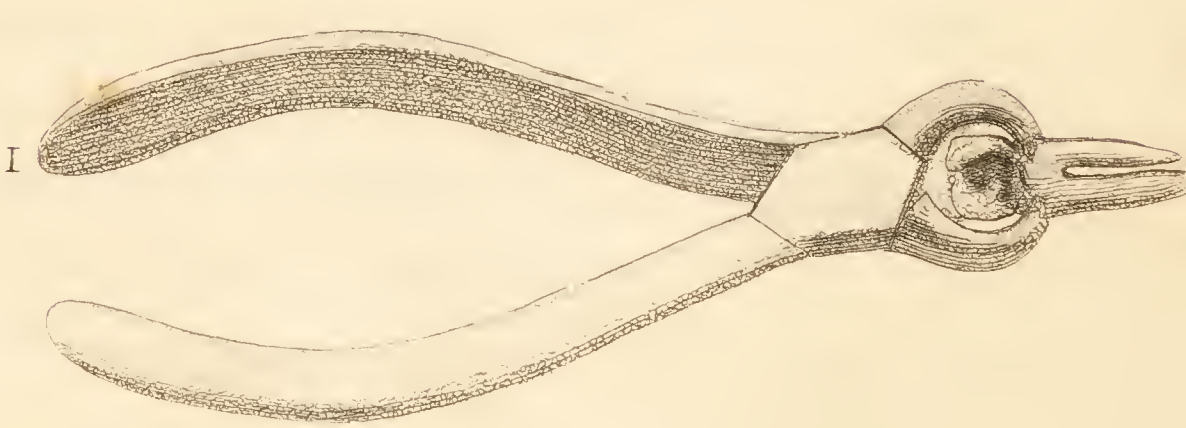
Myrrh has been long recommended as a purifier and preserver of the teeth, as well as sweetener of the breath. As a purifier, its power is to be doubted; for this *gum*, either in powder or tincture, if rubbed between the finger and thumb, will leave a *clammy stain*. The offensive fœtor of the breath arises from teeth under the act of decay; and if all the perfumes of Arabia were used in opposition, they would be still offensive, and must be so till the process of decay is arrested. Spirituous applications, as *soothers* to *tender teeth*, are but the means of deadening sensation in teeth *excited* by *pressure*, till caries and its consequences ultimately compel the proprietor to seek relief from more rational remedies.

Tonic restoratives for *relaxed gums* are daily offered to notice, and if used without due consideration of what *causes their relaxation*, and without the remedy such consideration would suggest, if the contents of all the bottles ever compounded were for that purpose formed into a flood, and made to pass, in portions, to the mouths of persons similarly situated, they would

prove as inefficacious as the insatiable draughts of the thirsty Tantalus.

Lotions announced as having the property of rendering the teeth *white* and *beautiful*, should ever be rejected, as they, for the most part, contain concealed *acids*, which by frequent application on the teeth ultimately rob them of their enamelled covering, and soon cause them to exchange a disgusting appearance, not unaccompanied with pain, for sure destruction.—The use of *acid* is much too prevalent in England; but on the Continent extremely common. An officer, on leaving Paris, was not only recommended the use of such a lotion, but to bring a supply with him in his box to this country; he incautiously consented, and the consequence was, from the fracture of the bottle in the passage, on his proposing to refresh himself with change of linen at Dover, his shirts and stockings met his astonished sight in shreds, like rags in preparation for the engine of a paper mill.


H
J
F
D
A
B
E
C
G


I

THE ANNEXED PLATE represents an improvement on the tooth-extracting *Key Instrument*, highly advantageous on the score of portability, and by being adapted to all purposes wherein extraction is deemed expedient or beneficial.

A A cylindrical shaft, resembling a pencil-case, for the reception of

B *A sliding lever*, with claw and bulbous fulcrum; which is *drawn out* and returned on the principle of a pencil.

C Vertical divisions in the *cylinder shaft* for the reception of a *Pin screw*, which gives stability to the required position.

D The nut of the screw by which the abridgement or elongation of the *lever* is regulated.

E The screw which disengages the *handle* from the *shaft*, and renders the Instrument pleasantly portable either in the pouch or pocket.

The Instrument in its contracted state with the *lever* within the *cylinder* (of inch and half circumference), is in length little better than three inches: but capable of an extensive power, fluctuating from that by elongation to nearly seven inches.

F & G Are graduating claws on an improved principle, being larger than those commonly in use; having semilunar recesses in their extremities for the reception of the sound parts of the *tooth* in the antecedent collapsion with the *bulbous fulcrum* previous to extraction, by which, when loosened, the tooth may frequently be removed by perpendicular elevation, or with the forceps; fracture and the necessary delay in the change of instruments being avoided.

H & I Are improvements on the straight and hooked forceps, semilunar in their points of collapsion, but so *bowed* in their *bite* as not to touch on the unsound parts of the tooth to be extracted, affording facility to operation, as well as bidding defiance to fracture.

J & K Are representations of diseasd teeth embraced by the *forceps*, which are in size nearly resembling those in common use.

"Necessity, the Mother of Invention," (on the scale of convenience) first suggested the theoretical properties of these instruments, which have been happily realized by the practice of the Inventor.

THE ANNEXED PLATE, is an exact representation after death of a female about thirty-two years of age, who fell a victim to the effects of cancerous enlargement of the mouth and face, occasioned by the disease of the maxillary sinus, or in less technical phraseology, the membranous linings of those portions of the upper jaw to which the molaris or (grinding teeth) are attached.

The malady appears to have originated in the unsuccessful attempt at removal of the second molaris (or grinder) of the upper jaw, easily substantiated by observation of the swollen state of the face thus represented.

In the early part of the summer 1821, the patient and her mother called on me with a note from Sir. M. I. Teirney; a single glance at the enlargement of the *Woman's face*, together with the loss of sight and dreadful derangement of the front teeth, and disfiguration of the right eye, convinced me the disease was formidable, deep seated, and dangerous.

On examing her mouth the appearance was truly frightful, the teeth loosened in their sockets, and the gum (on the side where the



malady existed) through disease and inflamation, enlarged to the size and colour of an immense egg plum, which descended into the mouth so low, as the tongue and teeth of the lower jaw, to the interruption of speech, and the reception of the ordinary nutriment on which the support of the animal economy chiefly depends.

On the patient complaining of difficulty and pain when either closing her mouth or masticating her food, from the descent of the first molaris, or large tooth of the upper jaw, and finding the bony sides of its socket completely absorded, and that it was merely retained in the mass of fleshy protuberance by which it was surrounded, I was induced by a slight application of my finger and thumb, through a copious discharge of foetid matter or serum, to separate it for ever from it's position, (see tooth at bottom of plate).

The cancerous tumour was the next object of consideration, and from its bulk and egg formed fulness in the mouth, was doubtless an annoyance of the most distressing description, upon pressure with the finger and thumb, it

appeared firm in texture, moveable to a certain extent, and at the same time capable of receiving and retaining the impression of any harder substance with which it might be found in contact (as in the case of schirrhous tongue) the under side of the tumour being deeply indented with two of the molaris of the under jaw.

Having at the early period of my residence in Brighton, in conjunction with a Surgeon of eminence, attended a case nearly similar though fortunately not teeming with such disastrous tendency; also one at Horsham, and since then seen a curious specimen of the same disease, arising from similar cause, though milder in effect, in an anatomical preparation at the *Ecole de Medicine in Paris*, I became seriously alarmed for the safety of the patient, and in consequence appointed another meeting on the following morning at ten. In the interim availing myself of manifold kindnesses and marked attentions I had experienced from Mr. Bond, of eminent surgical skill, I deemed it expedient to make him acquainted with the case which at the appointed time received the

advantage of his consideration and opinion, "*That the Eye being lost through the enlargement of the tumour would be as well to remain undisturbed, but that the tumour itself, should be immediately removed to prevent suffocation;*"

On the departure of my friend, I placed the patient conveniently in an armed sofa chair, and grasping the tumour firmly with the finger and thumb, readily disengaged it from the gum, to which it appeared attached after the manner of the coatings usually discoverable in the uneurismal sack, or the laminated layers of an onion, the bulk of the tumour when removed was more than that of a full sized hen's egg (see the tumour in plate) the operation seemed to be productive of little or no pain, although accompanied with a copious discharge of blood, from the vessels surrounding the parts from whence it had been divorced, on the blood ceasing to flow, I minutely examined the jaw and gum with a powerful magnifying mirror and soon discovered two stumps or portions of the roots of the grinding tooth called the *second molaris* they were also without much

difficulty detached with the point of an instrument named the punch, while the foetid effluvia arising from them, and the station they had so recently occupied, confirmed me in the belief, that to the violence committed in those parts, in the act of unsuccessful operation for the removal of a diseased and painful tooth, the first cause of the then, existing frightful malady, with all its dangerous dependencies, might be most fairly ascribed.

On exposing to her view the *peices* I had removed, and asking if she had ever felt pain from the tooth, or in that part of the jaw, she replied, she believed it to have been the origin of all her sufferings. The tooth to which the recently removed roots, had appertained, having long been diseased, and at various times very painful, her own inclination, and the wish of her friends, urged her to seek relief by it's removal, and for this purpose, she applied to the Medical Gentleman, who was in the habit of attending the family in which she then lived; unfortunately the operation was imperfectly performed and from that time (whether from cold, or what else she could not tell) pain,

more or less, appeared a constant attendant on that part of her face, while within the mouth the soareness of the gum, was not unfrequently accompanied with a disagreeable taste, and discharge from the immediate vicinity of the broken tooth; these uncomfortable sensations continued with little variation till the ceasing of the discharge, and was immediately succeeded by a numbness throughout the upper jaw, with occasional darting pains towards the eye till progressive enlargement of the face and interior of the mouth, ultimately placed her in that state of peril in which she presented herself to me for assistance, and of which the delineation in the plate offers the most perfect representation.

According to my wish in four days after the operation, the patient again visited me, gratefully describing the ease and happiness she experienced at the removal of the tumour, and the general comfort in her mouth by the applications I had recommended for it's restoration, but however happy the poor woman herself appeared at what she might conceive the success of the operation, I entertained the

most serious apprehensions for her safety, by perceiving as I feared, fresh granulations rising on the part from whence the tumour had been extracted.

These suspicions being unhappily verifyed by the period of ten days, and then feeling, as a Surgeon Dentist, I had afforded every relief which the nature of the case required at my hands, gratuitously tendered with the most anxious solicitude for her recovery I recommended her to accept from me as a subscriber to the institution a paper of admission to the Brighton dispensary where in concert with the Surgeons of the establishment, I might be ready if wanting to offer any assistance their better judgement might suggest; and also if her health should give way (which I but too plainly foresaw would soon happen) under the irritation and excitement then so rapidly proceeding, she would have the valuable advantage of medical advisers and assistance unencumbered by difficulty or expence.

The consultation which succeeded her admission into the institution, appeared decided as to the hopelessness of the case, and through

the kindness of a Clergyman brother to one of the chief Physicians of the Mary Le Bonne Infirmary; she was there admitted a patient, and in a consultation of the most able anotomical professors of the kingdom, speedy operation was declared the only probable chance of her preservation. The expedient however was not resorted to, because prudence precluded the promulgation of this opinion from promising recovery, as the reward of additional suffering. She soon after returned to Brighton, and passed through a lengthened gradation of a distressful disease till her ultimate dissolution, with a fortitude and resignation which will for ever render her memory estimable in the minds of all who knew her.

Some days previous to her decease, in expressing her thanks to myself and the medical gentlemen who had attended her, she desired if they conceived a dissection of her head, might prove of the smallest advantage it might be done according to their wish, previous to which I took the cast from her face which has furnished the representation in the plate.

On the dissection of her head and face, the

course and consequence of this dreadful disease was devastatingly traced through the maxillary ethmoid and sphœnoid bones, the greater portion of which were entirely destroyed by the size and pressure of the tumour, while in the back part of the eye, or the membranous parts of it, through which the optick nerve connects itself with the brain, a tumour of similar texture to that in the mouth had embodied itself, sufficient in the life time of the patient, hideously to force the eye out of the socket, in proportion as it destroyed it's powers of perception. *

The cause of this destructive malady from having had the inspection of two subjects living, and one anotomical preparation in Paris, appeared to me too plain. Each of the two first cases, like the one thus represented had arisen from fracture of a diseased tooth, in the immediate vicinity of the maxillary sinus, and the

* An observation of the distorted appearance of the right side of the face, eye, nose, and teeth, will easily convey to the comprehension of the reader the state of destruction in which the bones of the *cheek* and their contiguous associations were discovered.

other might have been produced from the fear or neglect of the patient, till by matter forming in the interior of the *antrum*, had first induced inflamation of the membranous linings of it's cavities, and the ultimate production of cancerous enlargement, had completed not only their destruction but the dissolution of the patient

FINIS

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